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CARD

TRANSACTIONS

OF THE

Hampshire Co. Agricultural Society,

DURING THE YEAR

1853.—6

PUBLISHED BY THE SOCIETY.

AMHERST, MASS.:
PRESS OF J. S. & C. ADAMS & CO.
1853.

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TO THE STATE BOARD OF AGRICULTURE:

TO THE SECRETARY OF THE BOARD:

AND TO THE HAMPSHIRE CO. AGRICULTURAL SOCIETY,

I respectfully dedicate these pages. The high character of the State Board is a sufficient guarantee of its success. Its recent institution, like the morning star, heralds the dawn of a new era in the agriculture of Massachusetts, an era of analysis, experiment and discovery.

To the efficient Secretary of the Board, CHARLES L. FLINT, ESQ., I am happy to acknowledge my obligations. Your frequent correspondence, judicious distribution of valuable publications, and your presence at the autumnal exhibition, prove an earnest devotion to the faithful discharge of your duties, upon which the usefulness of the Board is vitally dependent.

To the members of the Hampshire County Agricultural Society, I have the honor to present the Transactions of this memorable year. Allow me, here and now, to bear testimo-

ny to the noble spirit and enthusiasm, which animated you at your organization, successively triumphed over each form of opposition, and, at length, elevated you to the rank and privileges of a County Society, an almoner of the State Bounty. You have had and still have your own Hitchcock, Fowler and Nash, to cheer you onward; but the usefulness of your organization is only just begun. If the same spirit continues to fire your energies, your catalogue will enroll not merely seven hundred but a thousand names, your exhibitions gather ever-increasing numbers and your farms, flocks and herds ever improve in productiveness and value.

Very truly,

Your obliged friend,

JAMES W. BOYDEN.

Amherst, November, 1853.

Officers of the Society.

President,

ALFRED BAKER, of Amherst.

Vice Presidents,

EDWARD DICKINSON, of Amherst.
LINUS GREEN, of Hadley.
EDMUND SMITH, of South Hadley.
ISRAEL TOWNE, of Belchertown.
N. AUSTIN SMITH, of Sunderland.
SAMUEL WELLS, of Northampton.

Secretary and Treasurer,

JAMES W. BOYDEN, of Amherst.

Executive Committee,

SIMEON CLARK, of Amherst.
AMOS KELLOGG, of South Hadley.
ALFRED BAKER, of Amherst.
DAVID RICE, of Leverett.
JAMES W. BOYDEN, of Amherst.
LINUS GREEN, of Hadley.
AVERY D. HUBBARD, of Sunderland.
EZRA INGRAM, of Amherst.
NEHEMIAH W. ALDRICH, of Pelham.

Member of the State Board of Agriculture,

PROF. JOHN A. NASH, of Amherst.

TRANSACTIONS.

Transactions.

EARLY in April, the Executive Committee convened at the office of the Secretary and prepared a list of premiums, which was posted in more than two hundred public places, within the limits of the Society, and was published in the Amherst Express. One of the Show-bills was sent, for the purpose of exchange, to the Secretary of every known Agricultural Society, in Massachusetts. The number and amount of the premiums, as well as the objects for which they were offered, will appear in the following pages. The duty of awarding premiums was assigned to thirty-four committees, composed of one hundred and sixty-six ladies and gentlemen.

EXAMINING COMMITTEES.

On Essays. PRESIDENT HITCHCOCK, Chairman. Professor W. C. Fowler, Alfred Baker.

On Fine Arts. PROFESSOR HAVEN, Chairman. Mrs. Edward Hitchcock, Mrs. Edward Dickinson, Mrs. James W. Boyden, Mrs. C. D. Eaton, Pelham; Mrs. David Rice, Leverett; Mrs. George E. Fisher, Mrs. James L. Merrick, Mrs. J. R. Trumbull, Northampton; Mrs. G. Morgan Smith, South Hadley.

On Manufactures. PROFESSOR SNELL, Chairman. Mrs. Thomas Jones, Mrs. Aaron Warner, Mrs. A. M. Colton, Easthampton; Mrs. Porter Cowles, Hadley; Mrs. Harriet Kellogg, Mrs. William S. Tyler, Mrs. R. B. Hubbard, Sunderland; Alden C. Field, Leverett; Hon. J. B. Woods, Enfield; G. H. Gilbert, Ware.

On Farms. MOSES B. GREEN, Chairman. Linus Green, Hadley; Horace Lyman, Sunderland.

On Crops. SIMEON CLARK, Chairman. Charles H. Field, Leverett; Cyrus Stebbins, Granby.

On Fruit. P. SMITH WILLIAMS, Hadley, Chairman. Mrs. Simeon Clark, Mrs. Horace Henderson, Sunderland; Mrs. Linus Green, Hadley; Mrs. Coleman Hobart, Leverett; Mrs. Joseph G.

Ward, Pelham; Mrs. Edmund Smith, South Hadley; Josiah Ayres, Levi Boutwell, Leverett; Ashur Shepard, Northampton.

On Bread and Flour. Zebina C. Montague, Chairman. Mrs. Charles Adams, Mrs. George Baker, Mrs. Levi Boutwell, Leverett; Mrs. Rufus Scott, Hadley; Mrs. Obed Montague, South Hadley.

On Butter. Leander Wetherell, Chairman. Mrs. Alfred Baker, Mrs. J. S. Adams, Mrs. W. P. Dickinson, Hadley; Mrs. James M. Barton, Granby; Mrs. Thomas Alden, Belchertown; Mrs. Albert Montague, Sunderland.

On Cheese. Rev. George E. Fisher, Chairman. Mrs. Rufus Lincoln, Belchertown; Miss Lydia Dickinson, Mrs. Ransom Dickinson, Sunderland; Mrs. Nehemiah W. Aldrich, Pelham; Mrs. William W. Dickinson, Mrs. Harrison O. Field, Leverett.

On Maple Sugar. Albert Montague, Sunderland, Chairman. Mrs. Charles Field, Leverett; Mrs. Jonathan Cowles, Jr., Mrs. M. D. Lawrence, Belchertown; Mrs. Ferdinand Robinson.

On Fruit and Forest Trees. Professor Fowler, Chairman. Daniel Cowles, Hadley; N. Austin Smith Sunderland.

On Mechanic Arts. Dr. Rice, Leverett, Chairman. John Mee, John R. Cushman, Thomas Buffum, Pelham; Levi Adams, Hadley; Oliver Watson, H. T. Filer, Belchertown.

On Vegetables and Grains. T. G. Huntington, Hadley, Chairman. Moses Field, Leverett; Austin Brainard, Jr., South Hadley; Timothy Smith.

On Honey. David S. Cowles, Hadley, Chairman. Lyman Kellogg, Dexter Ingram, South Hadley; Cummins Fish.

On Plowing with Oxen. Dr. Trow, Sunderland, Chairman. Amos Kellogg, South Hadley; Chester Gray, Hadley; N. W. Aldrich, Pelham; Wm. Thayer, Belchertown.

On Plowing with Horses. Wm. P. Dickinson, Hadley, Chairman. Silas Ball, Leverett; Wm. W. Russell, Sunderland; Phineas D. Barton, Granby; E. Pomeroy Cutler.

On Subsoil Plowing. Russell T. Wheelock, Chairman. Kelita Hubbard, Sunderland; Lorenzo W. Lyman, South Hadley.

On Meadow Lands. John A. Morton, Hadley, Chairman. Augustus Clark, Granby; Ira Montague, Sunderland.

On Manures. Samuel Powers, Hadley, Chairman. Asa L. Field, Leverett; Harrison Church, South Hadley.

On Stallions and Farm Horses. Dr. Bemis, Shutesbury, Chairman. Luke Earl, Greenwich; Ebenezer Wiley, Sunderland; John W. Nash, Hadley.

On Draft Horses. Dr. Fish, Chairman. Timothy Putnam, Leverett; Emerson Bates, South Hadley; James Cook, Hadley; Henry Frink, Adolphus Strong, Belchertown.

On Mares with Colts. Wm. J. Patrick, Granby, Chairman. A. S. Howe, Shutesbury; Ashley Hubbard, Sunderland; Guy C. Munsell, Barnard Arnold, Belchertown.

On Colts. Dan Field, Leverett, Chairman. S. W. Whitney, Thaddeus Smith, Hadley; N. W. Bartlett, Williamsburgh; Waitstill Dickinson.

On Strings of Cattle. Baxter Eastman, Chairman. Stoughton D. Crocker, Sunderland; David Shores, Shutesbury; Peter Hobart, Leverett; Henry Fobes, Enfield; Lemuel H. Newell, Pelham; Nelson Smith, Granby; Moses C. Porter, Hatfield.

On Bulls. Nathaniel Dwight, Jr., Belchertown, Chairman. Brainard Smith, Sunderland; Joel L. Preston, Granby; Elisha Edwards, Southampton.

On Working Oxen. Joseph Smith, Hadley, Chairman. Ansel A. Rankin, Pelham; Thomas Alden, Belchertown; Daniel Paine.

On Steers. Horace Hunt, New Salem, Chairman. Alden Adams, Leverett; Rodney Ayres, Granby; Elijah Cowles, Hadley; Ransom Cowles.

On Cattle for the Stall. Parsons West, Hadley, Chairman. Samuel Dickinson, Granby; Samuel F. Dudley, Shutesbury; Oliver Dickinson.

On Milch Cows. Paoli Lathrop, South Hadley, Chairman. Wm. Hunt, Sunderland; J. B. Hall, Pelham.

On Heifers. Edmund Smith, South Hadley, Chairman. Cyrus Stebbins, Granby; Roderick Dorman, Belchertown.

On Calves. Elihu Smith, Sunderland, Chairman. George J. Lyman, South Hadley; Bela U. Dickinson, Emory Ballou, Pelham.

On Swine. Samuel Nash, Hadley, Chairman. Benjamin De Witt, Granby; Cephas Porter, Leverett.

On Sheep. Daniel Cowles, Hadley, Chairman. Park Warner, Granby; John Wiley, Sunderland; Earl Johnson.

On Poultry. G. Morgan Smith, South Hadley, Chairman. Baxter Hobart, Leverett; Olney Cook, Pelham.

The ladies and gentlemen, who constituted the examining committees, met, on the morning of the exhibition, at eight o'clock, in the parlor of the Amherst House. Their respective badges were distributed and they proceeded to their posts of duty.

ANNUAL EXHIBITION,

AT AMHERST, OCTOBER 26, 1853.

The day was one of the finest. A warm October sun, gentle breezes, and white clouds floating in the firmament, favored this much-loved festival. Early in the morning, the highways leading to the place of exhibition, were filled with carriages of all sorts, hastening to the Cattle Show. A larger collection of the people of Hampshire County and of adjoining towns in Franklin, gathered, than at any former exhibition of this Society. The display in all its departments was an improvement upon its predecessors, and would compare favorably with any exhibition of the kind, ever held in the State.

The order of exercises, as previously arranged, was faithfully observed. The exact magnitude and extent of the exhibition is indicated by the list of a thousand entries, which we here publish, together with the residences and names of the competitors for premiums, showing the breadth of territory, over which the operations of the Society have rapidly extended.

SHOW OF HORSES.

At nine o'clock, A. M., more than one hundred horses were on the ground. The number of colts was forty-eight; draft horses in pairs, thirty; mares with colts, sixteen; farm horses, thirteen; and stallions, two, of superior excellence. The entries were from the towns of Amherst, Belchertown, Cummington, Granby, Easthampton, Enfield, Hadley, Hatfield, Northampton, Pelham, Prescott, South Hadley and Williamsburgh, in Hampshire County; and from Deerfield, Leverett, Shutesbury, and Sunderland, in Franklin County. In the following list of entries, the names of towns in which competitors reside, are arranged in alphabetical order.

ENTRIES.

Stallions. Cummington, Orestes Richards; Granby, Milo A. Taylor.

Colts—three years old. Belchertown, John Sisson; Easthampton, Julius F. Clark, two; Hadley, David S. Cowles, Elijah Cowles, R. Wales Smith; South Hadley, C. Newton Montague; Williamsburgh, Samuel French.

Colts—two years old. Amherst, Cummins Fish, Guy C. Munsell; Enfield, Joseph R. Cowles; Granby, Augustus Clark, William B. Nash, Nelson Smith; Hatfield, Theodore Bagg; Leverett, Stephen Marvell; Prescott, Benjamin P. Aiken; South Hadley, C. Newton Montague; Sunderland, Kelita Hubbard.

Colts—yearlings. Amherst, John E. Albee, Baxter Eastman, Samuel T. Hills; Hadley, Theodore Pasco, Nathan S. Weeks; Pelham, Abijah Fales; Prescott, Benjamin P. Aiken; South Hadley, C. Newton Montague.

Mares and Colts. Amherst, Timothy C. Belding, William Boltwood, Ransom Cowles, Alonzo Dutton, Guy C. Munsell, Edward A. Stanley, George Warner; Granby, Augustus Clark, Nelson Smith; Northampton, James Clark, Horace Lyman; Prescott, Benjamin P. Aikin, Christopher Paige; Shutesbury, Abraham S. Howe; South Hadley, C. Newton Montague; Sunderland, William Miller.

Draft Horses. Amherst, Timothy C. Belding, Levi D. Cowles, George W. Hobart; Belchertown, A. R. & E. Owen; Cummington, A. R. Mitchell; Deerfield, Josiah Fogg; Hadley, James Cook, Jr., Amos Gray, Z. M. Lyman, John W. Nash; Hatfield, Theodore Bagg, Henry S. Porter; Northampton, S. N. Bosworth; Shutesbury, Samuel F. Dudley; Sunderland, N. & B. Smith.

Farm Horses. Amherst, Levi D. Cowles, Alonzo Dutton, Asahel Gates, Joseph P. Gray, Leavitt Hallock; Enfield, Henry M. Potter; Granby, Augustus Clark; Hadley, James Cook, Jr., Edmund Smith; Leverett, Abner Gilbert; Pelham, Nehemiah W. Aldrich; South Hadley, James L. Preston.

PLOUGHING MATCH.

At half past nine o'clock, this exciting scene occurred on a fine piece of green-sward, belonging to the estate of the late Thomas

Jones, a few rods from the village. The number of entries was eleven—five ox-teams and six horse-teams. Each competitor drew for choice of lots, at the time of entry, before going to the ground. Each lot was ten rods long and two rods wide, containing one-eighth of an acre. One Michigan Plow competed and obtained the first premium. Six of the ploughs were manufactured by Prouty & Mears of Boston; three by Ruggles, Nourse, Mason & Co., of Worcester; and two by J. R. Whittemore & Co., of Chicopee Falls.

ENTRIES.

Ox-Teams. Amherst, Levi D. Cowles, Prouty & Mears' Michigan Sod Plough; Granby, Erastus Nash, Prouty & Mears' Eagle C; Hadley, Linus Green, Prouty & Mears' No. 36; Edmund Smith (did not plough), J. R. Whittemore & Co.'s; Sunderland, Ebenezer P. Dickinson, Prouty & Mears' Eagle No. 50.

Horse-Teams. Amherst, George W. Hobart, J. R. Whittemore & Co.'s—William W. Smith, Prouty & Mears'; Deerfield, Josiah Fogg, Ruggles, Nourse, Mason & Co.'s; Northampton, Elisha Strong, two entries, Ruggles, Nourse, Mason & Co.'s No. 66 and No. 73—William Strong, Prouty & Mears' No. 5 1-2.

DRAWING MATCH.

At ten o'clock, the trial of working oxen commenced, in the highway near the College buildings. The cart was loaded with three thousand pounds of granite. Twenty-three pairs of cattle were entered. Each pair drew the load up the hill, in front of Rev. Mr. Dwight's Church, turned it, and was exercised in backing, and otherwise. The training of the cattle, their match in color and size, and their performance of the work, were considered by the Committee. The following list indicates the towns in alphabetical order in which the competitors reside, their names, also, the ages and, as far as can be ascertained, the breed and weight of each pair.

ENTRIES.

Amherst, Aretas J. Cadwell, 6 years old, 3500 lbs., native; Chester Cowles, 5 years old, 3465 lbs., Durham; Orrin Johnson, two pairs, native, one 6 years old, 3250 lbs.; one, 4 years old, 2650 lbs.; William Ingram, 4 pairs, two 5 years and two 4 years old; Horace

Kellogg, 6 years old, 3640 lbs., native; Lyman Kellogg, 6 years old, 3180 lbs., native; George A. Pomroy, 4 years old, native. Belchertown, Samuel Perry, 4 years old, Durham. Conway, Cephas May, 4 years old, 4380 lbs., native. Deerfield, Josiah Fogg, 4 years old, 3400 lbs., Durham; Moses Stebbins, one pair, 5 years old, 4160 lbs., native; one pair, 5 years old, 3685 lbs., Durham. Granby, Nelson Smith, 6 years old, 3350 lbs., native. Hadley, Chester Gray, 5 years old, native; Linus Green, 7 years old, native; Theodore Pasco, 6 years old, native; R. Wales Smith, 6 years old, native. Pelham, Asahel Aldrich, 4 years old, 2800 lbs., Durham. South Hadley, Edmund Smith, 4 years old, 3600 lbs., half Durham, half native.

SHOW OF CATTLE.

This was the principal department of the Fair. More than three hundred specimens of superior native and grade stock were on exhibition. Two long strings, numbering one hundred and sixty-two fine oxen, attracted much attention. Forty-six cattle were entered for the drawing match, in pairs. The count of steers was fifty-two; heifers, twenty-one; calves, eleven; bulls, nine; fat oxen, eight, and milch cows, six. The entries were from Amherst, Belchertown, Conway, Deerfield, Granby, Hadley, Leverett, New Salem, Pelham, Prescott, Shutesbury, South Hadley, and Sunderland.

ENTRIES.

Strings of Cattle. North Amherst, forty-three pairs. Hadley, thirty-eight pairs.

Steers—three years old. Amherst, William Boltwood, native; Ransom Cowles, native; Daniel Dickinson, native; Ezra Ingram, one quarter Durham; Eleazer Kellogg, native; Emory H. Needham, native, weighing 2526 lbs. Deerfield, Moses Stebbins, English. Hadley, Chester Gray, native; Chester Smith, native. South Hadley, Edmund Smith, one-quarter Durham, weighing 2920 lbs.

Steers—two years old. Amherst, Alfred Baker, half Devon; Jonathan Cowles, native; Flavel Gaylord, native; Emory H. Needham, native, weighing 2130 lbs. Pelham, Monroe Eaton, part Devon. Shutesbury, Charles Hamilton, twins, native. South Hadley, Edmund Smith, three-fourths Durham, and weighing 3070 lbs.

Steers—one year old. Amherst, Alonzo Dutton, native; Asahel Gates, Devon and Durham; Flavel Gaylord, native; Francis L. Pomeroy, native. Conway, Cephas May, Durham. Hadley, John A. Morton, native. New Salem, Horace Hunt, Devon.

Heifers—three years old. Granby, Erastus Nash, native. *Two years old.* Amherst, Alfred Baker, native; Lucius Boltwood, part Ayrshire; Joseph Dickinson, native; Ebenezer Gaylord, native; Guy C. Munsell, seven-eighths Durham. Granby, Erastus Nash, three natives. New Salem, Horace Hunt, one Devon and one Durham. Sunderland, Sylvester Brown, native. *One year old.*—Amherst, Spencer Church, Ayrshire grade; William W. Dickinson, Durham grade; Horace Kellogg, half Devon; Guy C. Munsell, Durham. Hadley, Joseph Adams & Sons, half Devon. New Salem, Horace Hunt, Devon. Sunderland, William Miller, native.

Calves. Amherst, Henry Smith, 5 months, Durham; Wm. W. Dickinson, 10 months, Durham grade; Wm. W. Smith, pair of steers, 8 months, native; Russell T. Wheelock, pair Devon steers. Belchertown, Barnard Arnold, 6 months, Durham. Granby, Augustus Clark, 5 months, Durham. Hadley, Theophilus P. Huntington, one Durham and Ayrshire, 2 months; pair heifers, Durham and native, 3 months. Leverett, Cephas Porter, 5 1-2 months, native, weight 830 lbs. Prescott, Christopher Paige, one, 9 months; one, 10 months.

Bulls. Amherst, Alfred Baker, 1 year, half Devon; Horace Kellogg, 1 year, half Devon; and one 17 months, half Devon. Belchertown, Barnard Arnold, 6 months, native. Granby, John McMaster, 20 months, seven-eighths Durham. Hadley, Joseph Adams & Sons, 1 year, native. New Salem, Horace Hunt; Proctor Powers, Devon grade, 18 months. Prescott, Christopher Paige, Durham, 1 year, weight 1100 lbs.

Fat Oxen. Amherst, Horace Kellogg, one pair, 4 years old, 3270 lbs. Deerfield, Moses Stebbins, one pair Durhams, 6 years old, 4300 lbs. Josiah Fogg, one pair. Hadley, Chester Smith, one pair, 6 years old, 3600 lbs. New Salem, Archibald Wheeler, one pair, 6 years old.

Milch Cows. Amherst, Wm. W. Dickinson, Durham grade, 10 years; Asahel Gates, three-fourths Durham, 8 years; Timothy Smith, native, 10 years. Hadley, Theodore G. Huntington, native, 8 years; John A. Morton, Durham, 8 years. Sunderland, Hubbard Graves, native, 9 years.

SWINE.

Boars. Amherst, Edmund Hobart, 11 months, Suffolk and Mackay. Sunderland, Hubbard Graves, 13 months, Suffolk; N. & B. Smith, 13 months, half Mackay; Ebenezer Wiley, 1 year, Suffolk. *Breeding Sows and Pigs.*—Amherst, John Lyman. Sunderland, Hubbard Graves, Suffolk; N. & B. Smith, Suffolk and Mackay. *Litters of Pigs.*—Amherst, John Lyman, six, 4 to 6 months; Timothy Smith, one, 6 months, Suffolk; Wm. W. Smith, 6 pigs, quarter Suffolk, 3 months. Deerfield, Waldo Cleavland, 10 pigs, 5 weeks, Suffolk. Hadley, R. Wales Smith, 6 pigs, 4 1-2 months, half Mackay. Sunderland, Claudius B. Hubbard, 9 pigs, 3 weeks, quarter Suffolk.

SHEEP.

Bucks. Granby, Augustus Clark, one French Merino, and one, half Merino. *Ewes.*—Granby, Augustus Clark, six French Merinos. Hadley, Linus Green, six South Downs. Pelham, Lemuel H. Newell, South Down and native.

POULTRY.

Turkeys. Amherst, E. P. Dickinson. Pelham, Lemuel H. Newell. Shutesbury, S. & N. Adams. *Geese.*—Granby, Luke M. Clark. *Fowls.*—Granby, Augustus Clark, Shanghaes. Hadley, F. Bonney, Bolton Greys; Theodore G. Huntington, Shanghae and mixed; Z. M. Lyman, Chittagongs; E. P. White, Spangled Hamburghs; Harvey White, Bolton Grays.

SHOW IN SWEETSER'S HALL.

This Hall was a centre of attraction, during the day. The exhibition of fruit was excellent in itself; and, in view of the scarcity of fruit, the present season, admirable. Three tables were spread with eighteen hundred nice apples, assorted and arranged on four hundred

and fifty plates, each plate containing four or more apples. The entries of Fine Arts and Manufactures, were nearly two hundred. The walls and pillars of the hall were adorned with numerous well-executed paintings and drawings. The arrangements reflect the highest credit on Mr. Josiah Ayres and his assistants.

ENTRIES.

FRUIT.—*Apples.* Amherst, John S. Adams, 7 varieties; Nathan Bartlett, 4; David Blodgett, 9; Ransom Cowles, 8; William W. Dickinson, 7; Austin Eastman, 10; S. Keyes Eastman, 4; Miss Fay, 1; Stephen Johnson, 9. Hadley, Joseph Adams & Sons, 1 variety; Linus Green, 5 varieties; Theodore G. Huntington, 7; George W. Morton, 8; Theodore Pasco, 38 plates; Rufus Scott, 10 varieties. Leverett, Alden C. Field, 4. Montague, A. B. & M. P. Anderson, 5. New Salem, Horace Hunt, 5. Northampton, Theodore Rust, 38 varieties from Wisconsin; Ashur Shepard, Esq., 83 varieties; James R. Trumbull, editor of the Gazette, 30 varieties from Michigan. Prescott, Christopher Paige, 20 varieties. Shutesbury, Deacon Carver, 5; Col. Dudley, 9; Amos Ray, 12 varieties. South Hadley, Edmund Smith, 17 varieties. Sunderland, Avery D. Hubbard, 9; Kelita Hubbard, 16; Ransom Dickinson, 14 varieties. Wendell, Daniel Ballard, 10 varieties.

Cranberries. Amherst, Edward A. Stanley. Hadley, David S. Cowles.

Grapes. Amherst, John S. Adams, John Dickinson, Miss Fay, David Parsons. Sunderland, Ransom Dickinson, Samuel Dunlap.

Peaches. Amherst, Ansel C. Marshall.

Pears. Amherst, John S. Adams, Ansel C. Marshall.

Quinces. Amherst, Aaron Warner, Jr. Hadley, Linus Green. Leverett, Mrs. S. W. Boutwell. Sunderland, Ransom Dickinson, N. Austin Smith, N. & B. Smith.

FINE ARTS. Amherst, Elizabeth Adams, wrought worsteds; Frank Adams, drawings; M. Adams Allen, slippers; D. J. Bartlett, millinery; W. J. Bassett, door; Miss A. R. Bentley, lamp-mat; Miss C. Chaffee, millinery; Miss Emily Davis, oil painting and monochromatic drawing; Miss Abby J. S. Dickinson, worsted work; Miss L. Dickinson, birds; Miss Sarah T. Dickinson, lamp-mat; Mrs. M. H. Dutton, lamp-mat; Miss Emily Fowler, chairs and handkerchiefs. J. P. Gould, pen-drawings; George Graves, graining and lettering. Miss F. Hallock, napkins; Mrs. Hartly, tidies; Mrs.

Hartt, bed-quilt; Mrs. Hitchcock, paintings, box of French carving; Mrs. Howe, ottomans; Miss Ellen E. Kellogg, tidies; Mrs. Linnell, bed-spread; J. D. Marsh, drawings; Miss Amie Nash, pictures; Miss Sabra D. Palmer, chair-covering; Miss Emma Rankin, lamp-mat; R. Chauncy Russell, case of furnishing goods; Mrs. A. G. Sears, crayon drawing, oil, polychromatic and water paintings, papier maché folio-cover; E. G. Shumway, daguerreotypes; Miss Electa Smith, ottomans; Mrs. E. Smith, tidy; Miss T. G. Smith, tidies; Mrs. Wm. B. Smith, embroidered handkerchief; Miss Mary Snell, fancy needlework, glove-case, slippers, worsted bag and cushions; Miss Martha Snell, chair-seat; Miss Sabra Snell, lamp-mats; Miss E. Spear, lamp-mats; Miss E. H. Tourtelotte, wax-flowers; Aaron Warner, Jr., paintings; Mrs. J. R. Warner, tidy; Miss Mary Warner, fancy chairs. Belchertown, Miss O. H. Cowles, lamp-mat; Mrs. A. L. Gates, lamp-mat; Miss F. S. Owen, lamp-mat. Granby, Miss S. C. Clark, shoes; Miss Fanny Munn, bed-quilt. Greenwich, Mrs. Abby Earl, pictures. Hadley, Mrs. Bonney, collars, frock, lamp-mat; Mrs. C. D. Dickinson, lamp-mat; Linus Green, pictures; Mrs. Susan M. Hubbard, bouquet of flowers; Mrs. Theodore G. Huntington, worked handkerchief and sleeves; Mrs. E. M. Judkins, oil paintings; Miss H. C. Scott, paintings. Leverett, Mrs. Harriet D. Boutwell, wreath; Miss Henrietta Field, worsted work. Montague, Mrs. Calvin Russell, worsted picture. Northampton, Stoddard & Lathrop, boxes of collars, cuffs, pocket handkerchiefs, slippers, tidies. Pelham, Charles A. Parmenter, monochromatic drawing. Sunderland, E. S. Field, twenty-six oil paintings; Mrs. Julia Field, crochet bag; Mrs. N. Austin Smith, nine table mats; Mrs. Winslow, bouquet of wax flowers; Abram Wright, Chinese mice and house.

Manufactures. Amherst, Miss L. S. Bangs, rag carpeting; Miss Angeline Clark, bed-quilt; Mrs. Simeon Clark, men's hose; Mrs. Enos Dickinson, 2d, skeins of worsted and silk; Mrs. Fidelia Dickinson, rag carpet; Mrs. D. S. Field, rag carpet; Mrs. Seth Fish, carpeting; Mrs. George Graves, bed-quilt; Mrs. E. Haven, hearth-rug; Mrs. Horace Kellogg, blanketing; Mrs. William Kellogg, woolen yarn and hose; E. S. & F. A. Pierce, case of shoes; Miss L. Robinson, bed-quilt; Mrs. William B. Smith, yarn; Mrs. Savannah A. Thayer, hearth-rug, bed-quilts; Mrs. Tourtelotte, carpeting. Belchertown, Miss Harriet E. Alden, stockings. Greenwich, Mrs. Abby L. Earl, bed-quilt. Hadley, Mrs. G. M. Lyman, wool carpet. Leverett, Miss Maria Dunklee, counterpane; Mrs. Alden C. Field, bed-quilt; Field & Hubbard, woolen yarn; Mrs. Moses Field, stair

carpeting. Pelham, Mrs. Edmund Mirick, rag carpet. Shutesbury, Mrs. Hemmenway, rag carpet. South Hadley, Mrs. Edmund Smith, bed quilt, rag carpet. Sunderland, Mrs. C. Crocker, rug; Mrs. Samuel Dunlap, carpeting. Mrs. Betsy Hemmenway, table cloths; T. E. Monsell, wicking and batting; Mrs. Albert Montague, frocking and counterpane; Alonzo Paine, coon-skin robe; Mrs. Orrin Paine, counterpane, bed-quilt; Mrs. Eli Sanderson, bed-quilt; Mrs. Henry Sanderson, palm-leaf hat; Mrs. N. Austin Smith, hose and table mats. Also, Mrs. M. Babbitt, bed-quilt; Mrs. Luther Chapin, mittens; Mrs. Susan M. Hubbard, rag carpet; Mrs. Janes, quilt; Mrs. John Smith, bed-quilts; Mrs. N. Smith, carpet.

SHOW IN PHENIX HALL.

This spacious hall was filled with articles appropriate to an agricultural fair. The display of dairy products was of the highest order. Of cheese, not less than three hundred pounds were exhibited. More than four hundred pounds of butter, in golden lumps, graced the tables. The green pastures and fine stock of "the happy valley," and each "queen of curds and cream," were nobly represented. There was a fine display of bread, flour, honey, maple sugar and in the department of the mechanic Arts. It is due to Mr. M. B. Green, who had charge of this hall, to mention the highly satisfactory manner, in which his duties were performed.

Butter. Amherst, Mrs. Benjamin W. Allen, Mrs. William Boltwood, Mrs. Aretas J. Cadwell, Mrs. Simeon Clark, Mrs. Chester Cowles, Mrs. Levi D. Cowles, Mrs. Bela U. Dickinson, Mrs. Enos Dickinson, 2d, Mrs. John Dickinson, Mrs Joseph Dickinson, Mrs. Willam Dickinson, 2d, Mrs. William W. Dickinson, Mrs. Ebenezer Gaylord, Mrs. Thomas Hastings, Mrs. Samuel T. Hills, Mrs. Edmund Hobart, Mrs. Horace Kellogg, Mrs. Lyman Kellogg, Mrs. John Lyman, Mrs. Henrietta H. Mather, Mrs. Walter Newton, Mrs. Julia A. Potwine, Mrs. Stephen P. Puffer, Mrs. Asa O. Stoughton. Belchertown, Miss B. C. Alden. Granby, Mrs. Luke W. Clark. Hadley, Mrs. Porter Cowles, Mrs. Theodore G. Huntington, Mrs. Theophilus P. Huntington, Mrs. Almira Nash, Mrs. Royal Wales Smith. South Hadley, Mrs. Edmund Smith. Sunderland, Mrs. Salmon Clark, Mrs. Claudius B. Hubbard, Mrs. N. Austin Smith, Mrs. Nathaniel B. Smith, Mrs. Brainard Smith.

CHEESES. Amherst, Mrs. Simeon Clark, two; Mrs. Bela U. Dickinson, two; Mrs. Daniel Dickinson, two; Mrs. Samuel S. Dickinson, one; Mrs. William B. Godfrey, pine apple; Mrs. Horace Kellogg, two; Mrs. Oren Williams, three. Granby, Mrs. Luke M. Clark, two. Hadley, Mrs. Levi Russell, sage. Prescott, Mrs. Benjamin P. Aiken, three. Sunderland, Mrs. Adelia Dickinson, two; Mrs. Avery D. Hubbard, two; Mrs. N. Austin Smith, one; Mrs. Oliver Williams, one.

BREAD AND FLOUR.—*Wheat Bread.* Amherst, Mrs. Simeon Clark, Mrs. Levi D. Cowles, Mrs. Tempe Linnell, Mrs. John Lyman, Mrs. Emory H. Needham, Mrs. Julia A. Potwine, Mrs. Franklin C. Willis. Hadley, Mrs. Levi Adams. Leverett, Mrs. Harriet D. Boutwell. Shutesbury, Mrs Nathaniel D. Adams. Sunderland, Mrs. Oliver Williams. *Rye Bread.*—Amherst, Mrs. Alfred Baker, Mrs. Aretas J. Cadwell, Mrs. Simeon Clark, Mrs. Levi D. Cowles, Mrs. Bela U. Dickinson, Mrs. Edmund Hobart. Hadley, Mrs. J. Adams. Shutesbury, Mrs. Nathaniel D. Adams. South Hadley, Mrs. Edmund Smith. Sunderland, Mrs. Claudius B. Hubbard, Mrs. Albert Montague, Mrs. Oliver Williams. *Rye and Indian Bread.*—Amherst, Mrs. Leavitt Hallock, Mrs. Tempe Linnell. Belchertown, Mrs. B. C. Alden. Leverett, Mrs. Orus Ball, Mrs. Asa L. Field. Sunderland, Mrs. Claudius B. Hubbard, Mrs. Oren Williams. *Wheat Flour.*—Amherst, John Lyman. Hadley, Joseph Adams & Sons, George Dickinson. Sunderland, Avery D. Hubbard. *Rye Flour.*—Amherst, Alfred Baker. Hadley, George Dickinson. Sunderland, Albert Montague. *Biscuit.*—Hadley, Mrs. J. Adams.

MAPLE SUGAR. Sunderland, Peter Spaulding, Jr., two boxes.

HONEY. Amherst, Ebenezer Gaylord, Henry P. Kellogg. Hadley, David S. Cowles. Sunderland, Stoughton D. Crocker.

MECHANIC ARTS. Amherst, Charles H. Bangs, cheese press; E. & J. Cushman, straw board paper; Porter Dickinson, patent cornsheller, Field & Strickland, elegant cabinet furniture; Lucius C. Ingram, dovetail block; H. A. Keith, improved empire state stove; H. C. Kellogg, boots and shoes; E. S. & F. A. Pierce, side of tanned leather; Worthing & Wheelock, horse shoes. Boston, Leonard Streeter, lightning rod. Hadley, Levi Adams, churn; Joseph Adams & Sons, bent rims and saw bucks; David S. Cowles, bee hive. Leverett, Charles H. Field, child's cabs; Graves & Hatch, hoes; Montague, L. G. Rice, melodeons. Northampton,

Allen & Meekins, case of dentistry; Bridgman & Wetherbee, circular saw mill. Pelham, John Q. Braley, saw handles. Sunderland, Avery D. Hubbard, brooms; Abram Wright, Putnam's patent spring bedstead. Wendell, Daniel Ballard, apple-corer. Williamsburgh, Caleb Carver, Dawson, Warren & Hyde's gold pens.

ORDER OF EXERCISES AT THE COLLEGE CHAPEL.

VOLUNTARY BY THE CHOIR. PRAYER BY PRESIDENT HITCHCOCK.

HARVEST HYMN.—Tune, CASTINE.

Composed for this occasion by EDWARD BURNS OLCOTT, *of Amherst College.*

1

Father of all, our voice we raise
To Thee, with love and humble praise,
And thanks, for what thy bounteous hand
Has scattered o'er our smiling land.

2

Our fields, which wave with golden grain,
Our orchards, spreading o'er the plain,
Our flocks, our herds we owe to Thee;
Loud, therefore, let our praises be.

3

O may our thoughts and actions be,
Such as are pleasing, Lord, to Thee,
And may we to Thy throne draw near,
With holy love and humble fear.

4

And when, our harvests o'er, to death,
We yield our last expiring breath,
Then, O, our Guardian, Father, Friend,
Receive us at our journey's end.

ADDRESS

BY REV. F. D. HUNTINGTON, OF BOSTON.

HARVEST ODE.—Tune, HARNO.

Written for this anniversary by NORMAN A. PRENTISS, *of Amherst College.*

1

The God of harvest praise,
The God that rules above;
In loud thanksgiving raise
The grateful song of love.
To Him whose hand directs our way,
Whose mercies crown each shining day.

3

He makes our wants his care,
And gives his children bread;
The songsters of the air
Are by his bounty fed.
He hears the ravens when they cry,
And from His fulness doth supply.

2

He makes the fields rejoice;
Valleys and mountains sing,
With one united voice,
The praises of our King.
The Earth and Seas with one accord
Take up the strain, and praise the Lord.

4

This year has told apace,
As swift its moments sped,
His goodness and His grace.
Our footsteps safe He's led.
The earth enriched by fruitful rains,
Yields a rich harvest o'er her plains.

5

The God of harvest, praise,
Who rides upon the storm;
Tune, tune your highest lays,
And lift the joyful sound.
Loud hallelujahs to His name,
His *truth* and *mercy* still the same.

Benediction by Rev. A. M. Colton *of Easthampton.*

THE DINNER.

The procession was again formed and marched to Howe's Hall, which was tastefully trimmed with evergreens and presented a beautiful appearance. Three hundred plates were laid and all were occupied. The president, Alfred Baker, Esq., presided, assisted by Hon. Edward Dickinson, one of the vice presidents. After the clatter of knives and forks, Mr. Dickinson made an appropriate opening address — giving a brief historical sketch of the Society, and closed with the following sentiment:

The Massachusetts Board of Agriculture: We welcome its Secretary, C. L. Flint, Esq.

Mr. Flint paid a well deserved compliment to Dr. Hitchcock, who, he said, enjoyed a more enviable reputation, at home and abroad, than any other man in Massachusetts, and after an eloquent speech, gave this sentiment: *The progress of Agriculture*—may the enthusiasm never be less than it is to-day.

The next regular sentiment was Rev. Dr. Hitchcock—The Advocate of Agricultural Colleges and Schools. The Dr., as usual, made a very pleasant, practical and profitable response.

The next sentiment was—*The Orator of the day:* He has given us a lesson worthy of the study of a life time.

Rev. Mr. Huntington responded in a remarkably happy and facetious manner. He concluded with;—

These Industrial Arts—which adorn our life with beauty, comfort it with protection, if cherished in a faithful spirit, stand in perfect harmony with zeal for humanity and devotion to the glory of God.

The next sentiment was: *Prof. Fowler*—Abroad and at home, the friend of the union of science and practical Agriculture.

Prof. Fowler spoke briefly, and gave the following sentiment:

English Improved Agriculture—a light to guide the American farmer, when the circumstances are the same in the two countries, or a beacon to warn, when they are different.

The next regular sentiment was: *The Agricultural Press*—we are happy to see the Editor of the Boston Cultivator.

It being late, Mr. Howard made a few remarks, and concluded with the following sentiment:

> "Honor awaits o'er all the earth,
> Through endless generations,
> The art that calls the harvests forth,
> And feeds the expectant nations."

The State Board of Agriculture was represented by Secretary Flint, President Hitchcock, Mr. Brewer and Hon. Joseph Smith. The Hampshire, Hampden and Franklin Society was represented by its President, Paoli Lathrop, Esq.,—and the Hampden Society by its President, Francis Brewer, Esq., and Secretary, Mr. A. A. Allen, of Springfield.

The announcment of premiums, a vote of thanks to the Orator for his address, and a complimentary vote to the South Hadley Band and Montague Glee Club, concluded the dinner exercises.

ADDRESS.

Mr. President and Gentlemen:

When the farmers throw down the trophies of their twelvemonth's pacific campaign before the public, and so put their husbandry on exhibition, they virtually challenge a public criticism. Leaving, then, for a day, the natural privacy of their profession, they make confession of larger relationships. They acknowledge amenableness to those common standards of judgment that try the whole manhood. It will be only according to the liberties, if not indeed the rights, of the jubilee, therefore, if we hold their calling up into the light of those catholic claims imposed by the thinking and the policy, the conscience and the affections of humanity, in these times. Perhaps I may find an intimation that you prefer what suggestions are to be offered here should follow this liberal course, in the fact that you have invited a voice from outside your own regular ranks — shall I say the voice of a deserter, or an exile, or an admiring ally? — to address you.

To aid my purpose, let us take the farmer on his own domain. Let us go back and meet him on the farm. Suppose that, standing there in some interval of his work, he looks up and about him: he will very likely notice four familiar objects in his scenery — because they are the common monuments of our Puritan inheritance, and the universal signals of our republican and New England order of life. I mean the School-house, the Town Hall,

the Church, and the Homestead. Let me take these four structures as the visible symbols of four great classes of his relations to the world, which I wish to bring under your survey; and thus they shall fix the method and the limits of my address. Without threatening you either with a scientific dissertation, or a political treatise, or a sermon of theology, or a domestic lecture, I wish to represent, if I can, under these convenient types, something of the dignity of your freehold, as farmers, in our modern, American heritage of free thought, free industry, free worship, and free affections.

I. As towards the School-house just as it stands, with its various equipments for the intellectual discipline and furnishing of youth, I take it for granted every Massachusetts farmer will follow the most careful and most generous treatment. He will be its eager and unflagging patron. He will rob his own children of no portion of their rightful bounty in its sphere of noble study, by calling them off to help out the meagre force of labor at home, thus starving their brains while he fattens his mutton; inverting nature, by growing lordly sheep and sheepish boys. He will grudge no taxation that provides the best teacher that the most thorough committee can hire. He will see to it, that in its architecture, its order, its surrounding beauty, and all its apparatus and appointments of instruction, this little Smithsonian Institute of his district represents the best genius of the neighborhood, and reflects the educational wisdom of the day.

But beyond this ordinary fealty to good learning, I take the School-house as signifying also that whole contribution of science to agriculture, which is now one of the acknowledged and prime requisites of your vocation. And here my subject opens into a somewhat wider scope.

There is a rather irregular and unorganized, but on the whole progressive, *body of information*, which is called, by courtesy, the Science of Agriculture. It is gradually taking the shape and proportions, under your intelligent authors and periodicals, of other and exacter sciences. If we seize this body of knowledge precisely in its present

position, and speak to its present exigency, we shall find, I suspect, that it has passed through its first stage, viz., its era of general discovery, and is now waiting for the patient hand of detailed experiment, and the organizing effects of a comprehensive induction.

I said it has passed through its first stage, or era of general discovery. The fact is, it passed through that stage so long ago, and stood still so long after, that it might reasonably have been doubted whether it ever meant to go on. If there is anything amazing in human history, I suppose it is the stationary attitude assumed by this radical employment of man, from the period of its origin in Syria, which must have been somewhere near Adam's time, down to about the present century. Consider that the race of proper ploughs — the only ploughs we should recognize as worthy the name — the basis implement of the whole business — is only about eighty years old. One apology offered for this protracted state of catalepsy, is an alleged double misfortune agriculture has had to suffer from climate — both extremes entering into a conspiracy to put it back; since the tropics ripened everything for it without the trouble of cultivation, while the frozen regions made it so much trouble to cultivate that it would not try. This explanation would answer pretty well, if nature had not happened to spread out a belt of territory round the globe, which is neither arctic nor torrid, but temperate, of very respectable dimensions, and admirably fitted for any progressive demonstrations, had our enterprising forefathers been so inclined. The simple truth may as well be confessed at once: Our progenitors liked fighting one another better than fighting stumps and swamps. That was the world's boyhood, and, like the few boys left in our day, who are not oldish little men in short clothes, those swift and supple sinews chose the bow and spear, with the big wrestling-ground of barbarian tribes, before the civilizing but rather fatiguing pickaxe and shovel. A better excuse, I am inclined to think, though far from a sufficient one, will be found in the paradoxical circumstance, that the great advantage of

agricultural pursuits has been their great hindrance. I mean the general independence they allow, as providing in themselves the necessities of living. This supersedes commerce, removes competition, and so tends to quench enterprise.

In affirming agricultural science to have passed through its epoch of general discovery, however, I referred not so much to the rude and slow advances it made for thousands of years earlier, as to the more recent period when it took a sudden start forward, and may be said to have first risen into the dignity of an intellectual concern. These discoveries moved in two directions, chemical and mechanical. Chemistry applied analysis to the whole *material* of agriculture, plants and animals and all products, as well as soils; whereas the stupidity of ages had been taking it for granted that, since all earth is earth, it matters nothing what its elements are, so the seed be under ground. Mechanism stretched out its hand, and gave the husbandman a new set of tools — a branch of the general turn for mechanical invention and elaboration that has marked the mental movement of the last hundred years. By both these agencies, not only was a new principle introduced into the *action* of agriculture, but at the same time accrued an enlargement of its spirit and motive.

Of course, at the first, chemistry did very little with her crucible, and mechanism comparatively little with its smitheries and factories. Both have, probably, only begun their magical economics yet. But it is none the less true, that in the simple discovery of the *fact*, that chemistry, along with geology and physiology, has relations to farming, and *could be made* to help it, in the bare establishing of that *fact*, was a grander crisis in the history of this business than is likely ever to come again. So in the demonstrated feasibility of labor-saving machinery, after the wooden ploughshare and the live-stock threshing-apparatus of centuries, there was the turning of a corner, the opening of a new page, the sudden light that always breaks in with the sunrise of a fresh principle, which did more for you than perhaps can be done again. So that if

it is modest ever to predicate such a thing of any interest, in a day so pregnant with wonders as ours, we might venture to declare, that the grandeurs of reformation, the cardinal revolutions, and the Lutheran age, in agriculture, are passed.

What, at any rate, is the precise direction of the efforts wanted now, and demanded of you, as farmers who, in cultivating the earth, mean to cultivate yourselves? It will be found, I suspect, that the answer to this question is as practical a theme, and as well worth your study, as any that the proprieties of to-day could possibly suggest. We hear much vaguely said of the need of enlightened farming — it has been the topic of repeated occasions like this: it is worth inquiring, where, precisely, at just this time, that light should be made to fall in.

In the first place, the posture of New England farmers as they are, exposes the need of rousing still further what may be called the spirit of the profession. It has its own rights, privileges, duties, and titles to homage. I remember, of course, how the very Festival that calls us together, the wide departments of your annual display, with similar gatherings enlivening other counties and states in this part of the year, are proofs that this process of quickening has already begun, and goes on. But then I remember, as well, how large a numerical majority of those who are called farmers of Hampshire fail altogether to represent themselves at the Fair; how many others are present, not as competitors *in* the arena, but only as gazers at a brilliant but distant and uninstructive pageant; and how inconsiderable, if I may say so, is the number that carry away such vital impulses, or such solid ideas, as will tell on the direct management of their own acres, and their next year's seed, and crops, and stock. This living and ardent interest which turns every item in the spectacle, every colt and cow, pig and parsnip, heifer and hen, rug and rareripe, to a stimulating value, and nerves a more resolute purpose to make the most of each man's, or woman's, personal chance, — this is the sort of ambition that pushes your pursuit forward,

converting it from a servile drudgery to one of the elegant arts, and winning for it heights of excellence and honor. I am afraid it must be acknowledged that intellectual apathy has been the drowsy curse that has so long somnambulized agriculture; and if it will serve to soften the accusation from an outside party, I will put the pulpit in with the plough; though who knows but if there were less dull planting, the wholesome contagion would run up the pulpit stairs, and there would be less dull preaching? Or, if it seems ungracious to press this charge just when the sleepers are waking up, I remind you, on the other hand, that these occasional signs of animation only cast the adjacent obstinacy into a more palpable disgrace. It is not that cheering signals of invigorated intelligence are not stirring the air; but that these better notions are not made to work their way out, and settle down on the actual fields, and regenerate your daily operations. Hence, I say, what you want is, by the help of the School, some systematic means of pushing every improvement out into the mass that have not yet arisen to come in search of it.

If you will allow me to ask questions, Are there no tokens to be found among you, that some of the primary maxims of the improved husbandry are as completely disregarded as the bulletins of the Chinese rebellion? Are there no fields lying in Hampshire, this fall, whose dwarfish crops proclaim as dismally as language could, that it has not yet been found out by their owners that potatoes and turnips crave potash, that clover and peas want lime, that wheat and oats hunger for silex and phosphoric acid, just as voraciously as the Irishman in the kitchen wants the potatoes, horses the clover, or children late home from school the wheat?

Are there not certain triangular stains smirching the sides of barns under the stable-windows, left there by manure-heaps that took all weathers with no roof, which tell every passer-by that these prodigal feeders, though they locked the barn doors every night, and set traps for foxes, and sent constables after the thief that stole their apples, forgot that the atmosphere has a sly way of turning

robber, as well as giver,—that the sun and rain filch as well as fertilize,—and so did not shelter nor fasten down, by boards and muck and forest leaves and plaster, those volatile salts and gases which these noiseless marauders were snatching up into the sky,—so much gold out of their pockets? You would hardly applaud the thrift of a manufacturer that throws away a quarter of his raw material.

Are there no specimens of stock, in the yards and pastures of these towns, rawboned and diseased, and lean as the leanest kine of Pharaoh,—walking illustrations of the "anatomy of melancholy,"—which seem to show that the problem in their keeping has been reduction to the lowest terms,—and the multiplying of exceedingly vulgar fractions of beasts,—or finding the equation between the minimum of attention and the maximum of emaciation? Is there none of this stock usurping the place, and consuming the fodder, which of right belong to cattle, that should be here in Amherst taking premiums,—stock that has been badly selected, badly crossed, badly reared,—incarnated or rather inskeletoned libels on the whole law of reproduction?

On the other hand, have you all discovered the real philosophy and economy there is in feeding your cattle on pine boards? in other words, discovered that if you put them *into* a warm stable, instead of letting them shiver on the north side of it, all the drizzly and frosty weather of winter, you thereby provide fuel for their vital sustenance which the furnace in their lungs would otherwise have to borrow from their stomachs, to keep up the temperature, at the cost of a fifth more in quantity of meal or hay? Have you acted on the false presumption that young cattle will eat up the third-rate stuff, like stalks and straw, with a better appetite, if they are not allowed anything else,—whereas the truth of their dietetics is, that they will swallow this inferior food far more easily at noon, if you lubricate their throats with a little more epicurean catering for breakfast?

Are there no dilapidated buildings, filthy front yards, staggering fences, broken tools scattered over haymows

and cornbins and woodpiles, instead of hanging cleansed and polished in a tool-room,—all vile witnesses how it is forgotten that prosperity never takes the arm of a sloven?

Now these neglects seem to show that, over and above the attainments of a few scholarly persons, or rather between their science and the practical work of the multitude, there is needed a connecting link,—something to kindle in Messrs. Smith, Jones and Brown, out on the lots, an appreciative concern for the writings and deductions of Messrs. Liebig and Norton, Hitchcock, Jackson and Harris, in their studies and laboratories. An exhibition is opened to some purpose, if an emulation is provoked by it that sends every man home from cattle-show, determined that he will be a master on his acres, and not a plantation slave driven by the whip of necessity, —an original creator by his mind, and not the mere manual drudge of habit.

But something else is needed besides this wakening of ambition. It cannot be denied that the large accessions recently made to agricultural knowledge, fail sometimes to secure confidence and adoption among practical men, from a cause more legitimate and a little more reputable then sheer stupidity. A distrust has been created towards the recommendations of professedly scientific authorities by a plain contradiction between the theory and the trial. You are told, perhaps, with an air of dogmatic assurance, by some book or lecturer, that by a certain tillage you may be sure of gathering eighty bushels of Indian corn, from an acre of your ground. You comply with the conditions, but gather only forty bushels of the corn. Your weekly agricultural paper extols poudrette, and advertises for the dealer. You send the money, and get the article, but not the expected profit. A theory advises you that if you will put in a subsoil plough, you will double your harvest. You try it, and harvest less than last year. The Agricultural Society recommends a new mowing-machine; you pay for it; it does not work, and lies rusting, an ugly eyesore, in the shed. These are very common experiences in all parts of the country. In each case, there is partial information, which is one form of falsehood. The dressing

was applied to the wrong soil; the subsoiling was tried in the wrong place; the machine was handled in the wrong way, or had some loose screw. The pupil is deceived, either by superficial instruction, charlatanry, or his own haste; and so book-farming falls into contempt. Both are wrong, the instruction and the contempt. Let us see why.

The main oversight of the recent efforts at improvement has been a too hasty generalization, and a deficiency in patient, painstaking, accurate records of experiment. A few brilliant announcements have dazzled our eyes; sanguine lips have trumpeted abroad spurious maxims; and the golden age of great profits and easy times has been heard knocking at the doors. Following the explosion of this sophistry is apt to come a reaction of discouragement, as unreasonable as the flattery. What the interests of your profession seem to me to be imperatively demanding just now, therefore, will be two things: 1. The most rigid and thorough experiment, as to every detail and particular of every mode of tillage, enriching and renewing of lands, breeding of stock, and new implements, taking into account all the most minute and variable conditions, data, circumstances, attending that experiment: and 2. A faithful, exact, and systematized registration of every such experiment, including specific statements as to all the particulars alluded to. This is that *second stage*, following the era of general discovery, which agricultural improvement has next to pass through; a period of thorough experiment, and scrupulous registration. Till we have the tests and tables only thus to be furnished, we have no rational induction, and of course no development of principles that will give us a proper science. The more extensive and diversified these experiments on a given question are, throughout the country, the sounder your basis for an induction. Then let these records, bearing the stamp of more precision than is common in county reports hitherto, duly and responsibly authenticated, be brought together and collated by competent hands, — and you have got a body not of theories but of facts, —

facts that will justify a broad and impregnable generalization, fit to be published, and constituting a noble contribution to substantial science.

One prime difficulty that will attend these processes will be an inadequate sense of the liability to deception. If you would meet those enemies to real advancement from which the farmer has already suffered so much, — careless statements and half-established conclusions, — you must bring into the field exact weights and measures, exact observations of climate and weather, exact attention to every element that may influence the result. Such credulous rules of evidence as suffice for tea-table gossip, or stories of table-rappings, will not answer. There must be a search for disturbing causes, not on one side only, but all sides. If the case is one pertaining to an out-door crop, like wheat for instance, consider the variety of elements you have got to watch and include in your report. There is, first, the quality, species and pedigree of the seed sown; there is the time of sowing; there is not only the composition of the soil, but its mechanical preparation, its comminution by plough and harrow, its situation as regards exposure to the sun, latitude, springs of water, and the antecedent crops taken from it; then there is the whole subject of manures, as to ingredients, condition, amount, and mode and time of application; then the direct treatment of the crop on the ground; the cost of labor; then the subtle and fugitive meteorological changes; then the relation of the growth to diseases; still further, there is the harvesting, threshing, and winnowing, — for it has lately been ascertained that wheat subjected to one of the new machines, though fair in appearance, loses somehow a portion of its germinating, or reproductive power; and finally, not only the measurement but the weight of the yield, — for, as you know, wheat of the same apparent plumpness ranges over a difference of five or ten pounds' weight to the bushel. Now, it is not till you have brought into your registration each of these twenty-three specifications that you can be said to have furnished returns of this crop of wheat. There is not one of them, which a thorough-

bred scientific manipulator, if the case were transferred to the laboratory, would not despise himself for leaving out.

The same necessity for thoroughness exists in all other branches of the business. When you take up a lump of premium butter, you have hold of what seems to be a very simple, home-made fact, and a very pleasant one. But this fact has an antecedent biography, — and before the oily cake has slipped through your fingers, or elsewhere, if you are a good farmer, and a good Yankee, you have at least a dozen questions to ask about it, — how the fact has come to be, — all the way from the cow and the cow's mother, and grandparents, on to the toast. You want a written natural history of this lump, *ab ovo usque ad malum.*

Nor is farming singular, in this respect, among the sciences. Look at the nicety of astronomical calculations. Look at the minute mixtures of the chemist. Look at the hair-balances, and tests of exquisite delicacy, in every philosophical apparatus. Observe the almost awful precision exacted in clinical surgery. Furnish a Herschell's discoveries without the achromatic lens and infallible mountings of his telescope and siderial clock, with the horizontal and vertical adjustments of transit instruments, air-bubble and spider-lines; conceive of a Bergman's or Faraday's analyses, without atomic weights and unimpeachable tables and mathematical proportions, and you may expect a perfectly intelligent agriculture, without this sharp inspection, and these unquestionable statistics. Why should you desire exemption from them? They are what invest your calling with its lasting interest, — its intellectual charm. They furnish the sort of fascination that is likely to pique and attract the curiosity of bright young men. I can even imagine a man's having his sleep broken, his pulse accelerated, and his nerves in tension, while he watches for the impending result of one of these elaborate and exciting experiments, like the issue of some well-matched game.

I have spoken of the need of these tentative processes. I appeal to your own experience. There are few of that

more progressive class of farmers that form societies, and arrange exhibitions, like this, who have not some time been victims of crude statements. Indeed, it is quite extraordinary how many of what are now the prominent subjects, most interesting and most discussed, relating to practical husbandry, remain from year to year open and undecided questions, with about as much said on one side as the other; when nothing is wanted but trials enough and attention enough, to settle them peremptorily. In Massachusetts alone, there are farmers enough at work, if they would continue their observations, to determine any of them in two seasons. Make what allowance you will for that wide margin of uncertainty that always hangs about a business so dependent on seasons and weather, still, I say, Nature, reverentially and resolutely studied, never cheats her disciples. Find her laws, and, rely upon it, they never will miscarry. You have only to talk with your neighbors, or turn over the files of any agricultural journal, to find examples of what I refer to. What universal rules have been established, for instance, as to the mode of applying manures? Yet why should there not be rules, for all cases, as much as for the silversmith in mingling metals, or the apothecary drugs? Subsoiling has been preached for some five years past, both here and in England, as the Columbus discovery of modern tillage, revealing to every farmer a new territory underneath his cultivated one; you are pointed to Lord John Russell's turnips, and the Rackheath wheat. But does the practice actually apply as well to New England as Old? Is there an offset to its benefits in later crops and more exposure to frost? What are its relations to under-drainage? Does it relieve wet lands, or render them more hopelessly soaked and spongy? Is it equally good for a dry, friable soil on a sand-hill, as I have seen to be true in one case, or is it any better than the common deep ploughing as they practise it in Surrey and some parts of Yorkshire? Now what I affirm is, that each of these queries ought to have one, definite, indisputable, experimental answer, recorded where it can be got at; an answer put beyond the region of conjecture, and rooted in authenticated facts.

Again, of the application of lime, the preconceptions of chemical theory would seem to promise that it belongs only to non-calcareous soils; yet does not experience show instances where a calcareous soil has been specially fertilized by carbonate of lime? And if so, what are the conditions that generate the anomalous result?

Again, within two months, I have seen in a single number of a popular agricultural periodical, two communications, both in a very positive tone, taking precisely opposite grounds on the question whether, in salting hay, the salt may be thrown on the top of the mow and left to interpenetrate the mass, or must be cast into each separate forkful, or layer, as the hay is pitched from the cart.

Again, the Deerfield farmers, in this State, close by the celebrated residence of Henry Colman too, dispute one another to this day as to the value of the "old tore" to a grass crop, some of them insisting that it helps the next yield, and others that it is better to keep the sward close.

Or, once more, what is the right law of producing fertilizing agents? Must we continue the old fashion of spending the winter in feeding out all that we spend the summer in gathering in, copying the circle of the snake that swallows his tail, or is there some better way? And will more be gained by following the famous aphorism of the Earl of Leicester, "The more meat a ploughing farmer sends to Smithfield, the more corn he may sell at Mark Lane," or by raising young cattle?

Now what may be asserted of each of these mooted points is, not that every one of you may not have an opinion upon it, and be very sure he is right; but that his next door neighbor is likely to have an opposite opinion; whereas, both being reducible by experiment to fact, there ought to be, not opinions, but knowledge. The conditions of a given result ought to be as clearly determined as the oxidation in electro-magnetic machinery, combustion under a steam engine, or the proportions of chlorine and hydrogen in thirty-seven pounds of muriatic acid. In looking over the several reports of the county societies for the last year, I see complaints on half the pages of

non-compliance with the rules of the committees in reference to accurate returns. One reason, I suppose, is, that a farmer begins the season with no idea of competing, and therefore keeps no record; but unexpectedly finding Nature has favored him with a remarkable product, he takes it to exhibition, hoping his blunder will not forfeit his chance. This suggests whether it would not be well worth while, not only to withhold the premium on account of the omission, but to establish a separate prize for the best method and most accurate specimen, in reporting the whole internal history and transactions of the husbandry of the year.

What the school house is saying to the farmer, therefore, as the voice of the age in behalf of his science, is: While you are never to be afraid to think, and never to stop that study which is both the pabulum and gymnasium of the thinking faculty, — be specially true to this second stage of agricultural advancement, — the stage of patient, various experiment, and exact registration. Hold up steady lights over your own path, and your children's. Remember the distinction between theory and science. Theory infers from a single fact, or a few facts, and fills out the deficit with a guess. Science requires a broader base for its induction, and facts enough to justify the affirmation of a law. What we want to come at, in Nature, are her laws, not stopping with sporadic and fragmentary phenomena. What we want of the separate phenomena, is to marshal and compare them, and so make them ancillary to conclusions. Interrogate Nature, then. Besiege her with all manner of curiosity. Pound, and push, and caress, and entreat, and importune her, till you wrench her secret from her bosom. It is to incite our faculties, that obscurity veils so many of her treasures.

To this end, that he may be his own professor, scholar, secretary, and reporter, let every farmer have as complete an apparatus as he can afford, for conducting his examinations, and nice admeasurements. Then let him enter his daily record, with special respect for arithmetic. Let him keep a running debt and credit account with every acre of

his land, as much as with his blacksmith and grocer, and post his books. This will sharpen his wits, double his relish, and shed a steady intellectual irradiation through his whole employment.

Then, in addition, there ought to be some national publication, emanating from an agricultural department in the government, where nothing should be included but reliable results, collected from the entire survey of facts, somewhat like the Philosophical Transactions of a Royal Academy, only made up more directly from the sources of practical life.

I must not leave speaking of the relation of the farmer to the School-house without asking why agriculture, besides making the most of all existing forms of education from the primary school to the college, — and there certainly ought to be no further delay, it seems to me, in introducing into the higher classes of our rural district schools some succinct and lucid text-book, like that of Professor Nash, for example, — but, *besides* that, why agriculture may not have a larger school-house, *i. e.*, a college, of its own. It will be a striking case of forbearance, or something worse, gentlemen, if the grand staple business and fundamental occupation of this country is content much longer, without endowed and furnished institutions for training young men up to the highest pitch of agricultural accomplishment possible to the age. When it can be shown how the art of destroying men's lives is nobler than the art that saves them, or havoc and slaughter are better than peaceful production, then the government may be able to apologize for not giving agriculture a West Point, as well as war, and for not representing the soil in the Cabinet. The national policy of maintaining a Central Bureau for the army and navy, with none for husbandry, is much like a man's expending so much on a choice collection of pistols and poisons, that he has nothing left for good meat and flour.

Of the question, whether a thorough agricultural education can be got to the best advantage on a private farm, or at some public seminary, there is undoubtedly much to

be said on both sides. Probably the true method will be very much like the usual preparation for the professions of law and medicine, where a part of the course is taken among the lectures, and libraries, and cabinets of a university, and the remainder among the usages of the office. For mastering the science proper, the student will need such resources as few private citizens can afford; but he must also handle the tools. Without the first, he will be an empiric; without the last, an awkward visionary. In the former case, his hands may be brown, and his face crimson; but in the latter, his fingers will be white, and his whole management of a decided green.

Whatever great achievements have been reached in any field of thought have owed their finest impulses to an educated class, minds trained by special opportunities, some "sacred band," whose learning has quickened the ambition of the mass, and raised the intellectual tone to their own level. In the air that circulates through New England, no man's position is so humble as to forbid his aspiring to be one of that order of nobility. It is for the common interest, at least, to provide means to multiply it. If the inherent passion for excellence in what you undertake, if a love of perfection for its own beautiful sake, if an honorable professional pride, will not compel these energetic reforms, then let that lower motive, which instigates you to take off from each acre, every year, more dollars than you put on.

This lightening labor, or increasing the proceeds of labor, which amounts to the same thing, is not the attempt of idlers to shirk their task. It has a better justification. Take facts as they stand. Why do your young men run, as by some universal instinct, from the farm, where they were born, to the city, where they so often learn to wish they had not been born anywhere? Chiefly — whatever explanation they may put forward as having a handsomer look — chiefly because on the farm there is supposed to be an inevitable doom to hard, monotonous, wearing bodily toil, from daylight to sundown, life through, with no room for mental expansion, or generous tastes, or social recreation;

and, secondly, because, after all this labor, the farmer makes too little money. Nor will my faith in young men's natures suffer me to believe this is always a sordid calculation with them. For, in thinking of money, they think of it oftener as a means than an end. They want it for what it brings. On the farm, very frequently, are rooms without books, walls without pictures, manners without grace, clothes without fitness, and grounds without shaping or decoration. On the contrary, the city merchant buys a library and works of art, sends his children to schools where they learn to move with elegance as well as to cipher and parse, gets garments that are finer and fit, and is not so exhausted physically at nightfall as to prefer sleep to any company or book. He comes back into the country, and lays out a beautiful estate, sometimes with statelier animals, and selecter fruits, and tidier fences and hedges, and more blooming gardens on it, than his neighbor, who has all the while been staying there and making farming the business of his life. Now, it would be a hard task in persuasion to convince most young men that these things are not good, not desirable, and that the dollars which command them are not of the nature of an advantage. I confess I should be a bad subject for such persuasion myself. Besides, these things are all of the nature of picture-work; the boy cannot help seeing them; they work upon him while he stops on his way from pasture under the fragrant shrubbery, or peeps through the pickets at the mellow peaches and pears.

I know perfectly how apt his sanguine blood, and his ignorance of the ninety-odd failures in a city for every single success, are to put a fallacy into his plans and cheat his choice. But none the less is it true, what he goes to the city for is a chance, though but a chance, for certain means of refinement, liberality, and width in the whole style of life, such as scarcely a mere farmer about him, in the old way of farming, has displayed. Who ever knew a confident and chivalrous youth to doubt he should be one of the five that succeed, though five hundred fail? And, moreover, many young men at that aspiring period of life,

before the charm and glory of early ideals have faded off, thirst honestly for more stimulus to mental action, more enlarging ministries to thought, than they have found in rural places. This they dream of finding in the pressure of crowds and the sharp collisions of traffic. Perhaps they dream delusions; but this is the feeling. Depend upon it, if you would hold your sons and brothers back from roaming away into the perilous centres, you must steadily make three attempts — to abate the taskwork of farming, to raise maximum crops and profits, and to surround your work with the exhilarations of intellectual progress. You must elevate the whole spirit of your vocation, for your vocation's sake, till no other can outstrip it in what most adorns and strengthens a civilized state.

II. I have intentionally used so much space for the scholarly aspects of your profession, gentlemen, that I have left very little for the other three objects in the farmer's outlook, — the Town-hall, the Church, and the Homestead. I shall only touch each briefly, in the way of suggestion. The Town-hall I take as the symbol of your relations to the social compact, the body politic, or by whatever other name you may choose to describe the powers and functions of civil government. And when we have gone to the bottom of the matter, whether by the way of philosophy or Christianity, we shall find that the fundamental idea of politics is mutual protection and friendly intercourse. I do not say of feudal, or partisan, or aristocratic, or imperial politics,—for the law of *their* life has too manifestly been mutual repulsion and aggression; but of the true, ultimate, divine politics. Not to hold each other back, and pull each other down, and rob, and stab, but to confederate for the common good, and to complete an economy of universal growth, by means of equal labor, whereof all shall take the benefit, — this is the real and providential office, whether of separate empires or of the several interests under the same administration. Hence it follows that you serve the cause of good government when you do two things, — when you perfect your own business as one of the great productive forces which feed and cover hu-

manity, — and when you bring that calling into amity and reciprocity with other callings. Unless God fails to furnish a law for his children in his own love, the right political state for mankind is the state of brotherhood. The same law holds of trades, handicrafts, professions, as of persons. These pursuits enter into their "holy alliance," when they harmonize the two aims, to improve themselves and help one another. The commonwealth is not served, till the different branches of industry merge their jealousies in good-will. You read this law in the beautiful balancings, and musical accord, in which the Divine Spirit has attuned his creation. The very lands you daily traverse and handle, preach the right doctrine of politics. Animal, vegetable, mineral kingdoms support one another. Sun and water, vapor and vegetation, earth and clouds, are ever friendly and hospitable; they are perpetually running on some missionary errand in each other's behalf; their bureau of benevolence is older than the Holy College. And so it happens that no class of men are so well fitted as you, to re-stamp this divine intention on civil institutions and public laws. If there is any order that can be looked to, to pull off disguises from selfish demagogues, — voting greediness and falsehood out of office, and single-hearted patriotism in, — it must be your own order, — the order of Christian chivalry, whose knights errant are the men that "conquer all hard weather," whose martial music is the rustle of corn, and the stroke of flails, — who give you, instead of coats of arms, arms with the coats thrown off, and for banners sheaves of grain.

Never turn your backs, farmers, on the Town-hall. Never lose a vote. Take a lesson from your own craft. Try a political candidate by his back-bone. Give the crafty and supple dodger the outside row. Treat the drones as the bees do. Understand the men that are *set up* for office, and if they are not true men who can show you an honest eye, and a brave conscience, take care to set them gently down again. See that agriculture gets as much honor from legislatures as institutions that are more

showy and talkative. Read state papers and public debates. Avoid that wasteful economy which shortens the post-office bill, to lengthen the lawyer's. In these times, an agricultural people may know public men, and the true bearings of public events, as well as the busy throngs that trample pavements. There is no genuine reform that is not on the farmer's side, and he is bound to be a reformer of the constructive kind. Respect for law is instilled into him by the benignant regularity of seed-time and harvest. Reserve your destructive enginery for the weeds and caterpillars. He is exhorted to temperance by all the intimacy of his habits with nature. Commerce is his common carrier, and asks his protection. Manufactures and metropolis are his market; the jealousy that would cripple them wrongs himself. And all his life, the free winds and open sky over his head nurse in him that vigorous loyalty to republican liberty, that sympathy for the struggles of freedom everywhere, and that intense and rooted abhorrence of all slavery and despotism, which are the birthright of his blood, the instinct of his calling, and the inspiration of his soul.

III. By this public spirit, by disinterested patriotism, and a faithful conscience towards human welfare, the farmer will already have begun to feel holier ties attracting him to citizenship in the kingdom of heaven. It is by divine right that the church spire overtops all the structures that men's hands build, and hallows the landscape with its aspiration. Handling God's workmanship every hour, and treading his solemn temple-floor at every step, an unbelieving farmer is in some manner guilty of perpetual sacrilege. If any man's daily task puts him close to the eternal secrets of the universe, and into communion with the awful hiding-places of Almighty power, it is his. If any man is instructed in a creed that is at once devout and charitable, a piety at once reverential Christ-ward and generous man-ward, it is he. The deeper shame to all his manly sense, if he is not touched with the religiousness of his august surroundings, and if he does not blend worship with his work. Nature may not reverse her order, nor

unbar her everlasting ordinations, to dispel the illusions of his unrighteous prosperity with a miracle; but none the less does she carry the scourge in her hand, and keep her eye on him till his time.

Christianity is the patron of his labor, and ever has been. While she was shut up in monasteries, it is true she had no chance to breathe on him her benediction. But the moment she was let free from the bondages of that false guardianship, and walked forth in the immortal beauty of her freedom and love, she spoke graciously to the toilsman, and exalted labor. Again the common people heard the Master gladly. The Protestant reformation was the charter of emancipated handicrafts as well as the Pentecost of a free church. It stretched its hand over the tilled fields of Northern Europe, and industry woke to a new and nobler life. Thenceforth Christian literature spoke in honor of agriculture, not with the effeminate sentiment, the dainty rhetoric, and patronizing pastorals of Pagan classics. Virgil and Theocritus did not know how to glorify work in its influence on character. It was only under Revelation, that the dignity which heathendom had accorded to hands red with human blood began to be transferred to hands stained with the soil. But ever since the ladder of light sprang from beside the Patriarch's head in the stony pasture of Bethel, the Bible has striven to show the husbandman that all his fields open upward into heaven.

Our believing ancestry knew what the corner-stone of civilization is. Learn from them, that your acres will lie in the light of the Father's smile, only as they lie unprofaned in the light of Sabbath mornings, only as the church bell rings over their still glebe and resting "cattle on a thousand hills," only as you and your children go reverently up from them to the confessions of the sanctuary. Your waving grain, and ripening corn, and growing herds, will never wear such beauty, as when you pass them on your grateful way to the courts of praise. Make the growing wealth of your better industry to adorn and enlarge the outward temples of the Living God. The temple

will react with thousand-fold benefactions on your husbandry and your heart. Let your devotions take sincerity from your earnest life. Let your creed take largeness from the catholicity of your out-door and heaven-arched employments. The school-house, the farm-house, the town-house, may well bend in homage to the meeting-house. For learning without faith is but ambitious discontent; and government without Christianity is power without principle; and home without the beatitudes is only an animal's stall and bed, with no sacred joy and no spiritual peace. Besides, are there not acres among all your fields, where the only growths are gravestones and mounds, and the flowers planted by mourning love; where the only seed-time is that ordained by the sad necessity, "That which thou sowest is not quickened except it die;" and whose only "harvest is at the end of the world?" At that gate of the valley you will want a warmer and surer faith than Nature and her unpitying skies reveal; another promise of immortality than the poor prophesying of the worm and the chrysalis. You will want a Gospel, a Nazareth, a Calvary. And so you will go forth from your home, and pass the school-house and the town-house by, and enter in with grateful hope at the church door, on the village green, and bend towards the altar.

IV. If now, finally, we go back with him from all these exterior liabilities to his own premises again, we shall hardly need, by this time, to memorialize the farmer of what is required of him in his house. If the school has disciplined his thinking faculty and refined his taste, if the town-meeting has waked in him the exalting sense of citizenship, if the church has lifted his heart into communion with the Father of all families, and inspired his conscience by the prophecy of life eternal, he will scarcely be content to live a drivelling dullard at home, to play the selfish tyrant in the little political economy of kitchen and parlor, or to be worse than an infidel by providing not for his own. By derivation, the significance of your common title, *husband*-man, holds you to something. Husbandmen, I suppose, are not bachelor-men. Our agricultural

college, when it is established, will have to find some more consistent style for its diploma than *Bachelor* of *Husbandry*. Now, as Nature has done her part towards furnishing a husbandman, by making you a man, she seems to presume you will finish the business by making yourself a husband. And when you have done that initial duty, it will remain for you to take off the edge of two satires I have heard flung at married people, doubtless by some malignant critic, who, on being asked what matrimony was like, said it was "going home by daylight, after courtship's masquerade," — and then, what married life was, that it was "matrimony doing penance." Give him the lie. Husband is *house-band*, or organizer of household life. Organize it not only by the sterling, homebred, domestic moralities, but by the binding charm of those thousand amenities that distinguish a cultured home from a barbarian's hut. The delicate angel of the beautiful knocks at your doors, and begs admission, as well as the strong angel of the useful. Is there the fine eloquence of order, is there the disposing touch of taste, is there the simple and just adorning of nature, round all your doorstones, in all your front lawns, on the walls, and tables, and furnishing of your dwellings? How many hours of a spring morning would it take to embower your windows with all that is graceful in green foliage, and winning in floral splendor? Plant trees before you purchase Venetian blinds and painted pickets. You will carry a tenderer and therefore a manlier heart in your breast all day, if you pass out of a genial circle, through the fragrance of lilies, and roses, and honeysuckles. See that the sons and daughters are interlaced by bands more spiritual than gregarious bipeds. Let the harmonies of evening music weave their souls into some gentle and lofty sympathies, — gaining the boys over from ruder pleasures and doubtful companionships by the pre-occupying satisfactions of a cheerful, and courteous, and hospitable fireside. Starve your palate, if need ever were for such denial, to stock the library. Raise the tone of farm-house table-talk, if you can, — and let the ladies help, — above stale gossip, commonplaces of the day's work,

and scandalous tattle. Hang the proceeds of your premiums at cattle-show on the walls, not in battle scenes or daubed millinery, but in the shadings of some pleading picture that reflects a glorious idea, or a heroic sacrifice. Household life is not to unfold into grace and moral loveliness by accident, any more than the wealth of your orchard and garden. It must be cultivated. And I take it Christianity speaks of that higher kind of economy, as much as of butcher's meat and breadstuffs, when it pronounces him that provideth not for his own worse than an infidel.

Gentlemen, your patience has let me lead you through this round of your relations, to school-house, town-hall, church and homestead, — in unworthy fulfilment of my humble part in this day's varied and cheerful entertainments. When I could not show you illustrious oxen, nor aristocratic poultry, nor even an astonishing cheese, you have kindly condescended to let me try in another way, and do as I could by showing what is in my heart towards your work. If I have seemed to judge your calling by too strict a standard, I insist that I thus pay it only the profounder compliment. By my love for it, I am jealous that it realize its inherent and providential grandeur. To brave natures, nothing is so exhilarating as an aim that strains the sinews. Everything, in these times, demands that our manhood, trained in whatever school, be made up on a scale of magnanimous proportions. Everything threatens and scorns a contracted culture, a stationary policy, and an inactive brain. But beyond the common appeal uttered to all modern men alike, it is for you to build up a character that is distinctively professional. Show the world examples that will bear inspection,—let who will be the judges,—of the agricultural type of manhood. Boast nothing, but *be* so much that boasting shall be excluded. If it be true, that your class is now on the eve of vaster achievements than have ever marked its progress yet, these furtherances are to come only through the intellectual wakefulness, the moral sincerity, the domestic virtue, the religious wholeheartedness of you, its most favored members.

Essays and Reports.

AN ESSAY

ON THE ECONOMY OF AGRICULTURE.

BY L. WETHERELL.

The word Economy, at the present day, has a great variety of applications. The ancient Greeks used it only with reference to domestic affairs—never applying it to Agriculture, as now employed, but used the word Geoponics, whenever speaking of what related to the tillage of the earth. From the word husband which means a farmer, or cultivator of the soil, is derived husbandry which signifies the business of a farmer, or one engaged in Agriculture; so that all that is contained in the expression "Economy of Agriculture," is embodied, or nearly so, in that good old Saxon household word, "husbandry," which is perfectly familiar to all, whose mother-tongue is the Anglo-Saxon.

"*Public Economy*," says Colton, "*is the application of knowledge derived from experience to a given position, to given interests and to given institutions of an independent state or nation for the increase of public and private wealth.*"

Knowledge gives power to those who enter into partnership with Nature for the purpose of multiplying those products upon which man must subsist while a denizen of earth. Such knowledge as is derived from experience and observation, is unlike that which is obtained from theory predicated of hypothesis, founded upon speculation. Theory is only valuable when founded on inferences drawn from principles established upon facts derived from experience and careful observation in the Laboratory of Nature. Theory in this sense, is true science, which is to know,—or in a more general sense, certain knowledge, comprehending such facts and truths as will enable even a novice to practice the art with a good degree of success. Theory, in any other sense,

is science, falsely so called. Thousands, after having seen the end and folly of hypothetical theories, are led to denounce all theory; which is about as wise as it would be to refuse all coin because of the equally well known fact, that there is counterfeit coin in circulation. Such show greater weakness in this case, than they did by suffering themselves to be imposed upon by a mere charlatan at the outset.

The "application of knowledge derived from experience," is as essential to the agricultor, as to the lawyer, the physician, the clergyman, the statesman, or those engaged in any other vocation where these elements are considered requisite and necessary to prosperity and success. Knowledge derived from tradition, it will be admitted, has had and is still having too much influence in most of the arts and professions. Do not eschew knowledge because it comes to you through the medium of tradition, neither receive it because it claims experience as its endorser; for, in either case, you may be deceived. The Baconian, or inductive system as it is popularly denominated, is almost as fruitful of imposture, as now held and practiced, as the old system of philosophy which it supplanted. The rapid generalizations and hasty conclusions denominated "knowledge derived from experience," constitute one of the great evils of the present age—and no vocation, or profession, perhaps, is more infested with pseudodoxical experimentists, or self-styled inductive teachers, than that of husbandry.

Agriculture as an Art, has always been found in the highest state of perfection where the greatest advancement in civilization and enlightenment have been made. In tracing the history of civilization in connection with agriculture, it is found to consist of four distinct periods, viz., that of the hunter, the shepherd, the farmer and the gardener. Hunting, in the first period, was practiced for the purpose of procuring the means of subsistence. The comforts and pleasures, and luxuries of life are almost unknown in this state of society. Caves and caverns in northern latitudes, are to the people as houses, to protect them from the inclemency of the weather, and the peltings of the storm. Lot dwelt in a cave, he and his daughters. From the Savage life to that of the Shepherd or pastoral, the benefits or advantages over the former, are of a positive kind. A home, a more certain subsistence, and more leisure for intellectual pursuits, are enjoyed. The life of the shepherd is less the life of a wanderer than that of the savage, and without mental culture, tends to indolence. The prescriptive right of the shepherd tended to bring about the permanent division of land into farms, and to establish the right every

individual has to the fruit of his own labor. Thus dawned upon the pastoral, or shepherd life, the agricultural, which was soon succeeded by the Horticultural period, which is the highest state of terra-culture, and with it, is generally found associated moral and intellectual culture, and, necessarily, a highly enlightened and advanced state of civilization.

Hence, it may be inferred, that, whether a knowledge of Agriculture and Horticulture was originally imparted to man by his Creator, and partially lost by the fall and the barbarism which succeeded, or, whether it is man's discovery, its introduction among savages, has a tendency to produce civilization.

The conquests of Cæsar introduced agriculture into Gaul—and converted her woods and marshes into fertile and fruitful fields. Thus have war and conquest on both continents, been succeeded by a higher state of civilization, and so has been partially realized, the fulfilment of the prophesy, that the sword and the spear shall be converted into implements of husbandry.

It was the boast of Pliny, the historian, that the arts introduced by the Roman conquests, had diffused happiness over the earth. Modern testimony tends to confirm this statement. Visit the islands of the sea, and where you find the people skilled in the art and practice of Agriculture, they will be found subordinate, docile and gentle.

This art, which has had so powerful an influence in the civilization of man, lies at the very foundation of both individual and national growth and prosperity. The Economy of such an art, is, truly, worthy of consideration—for, whatever tends to increase the productiveness of Agriculture, communicates happiness to individuals and energy to the State.

A complete knowledge of "The Economy of Agriculture," is a *desideratum* that has been long and diligently sought, but, like the philosopher's stone, still remains hidden in the dark recesses of Nature. It is true, that some progress has been made in the art of cultivating the soil, yet, it is equally true, that much remains to be known before the most economical mode of changing inorganic bodies into organic, can be successfully practiced,—or in other words, before the shortest and best way of changing earth into gold, is attained.

No specific science has done more to reveal the hidden mysteries of both the organic and inorganic kingdoms, than that of Chemistry. But Chemistry, even with all its power of analysis, fails to gain access to the penetralia of Nature's hidden mysteries, concealed where neither the eye nor human reason can ever penetrate, how eager soever they may be in their toils and analyses.

The "Economy of Agriculture," if duly studied, will guide a man in the investment of money, or credit, in the purchase of land which it is proposed to work—in the locating and constructing of the buildings thereon, or if they are already erected, in rendering them convenient and suitable in every respect to compass the end for which they were built—in fencing—in stocking, if a grazing farm, whether with sheep, or some other animals—if cows, in selecting with reference both to the quantity and quality of milk produced; so of sheep, with reference to the fleece—if a grain farm, in the selection of all the farm implements,—teams for work, whether horses or oxen—grain to be used for seed,—the right time to plough, the depth, the number of times, what manures, or other stimulants, shall be employed, how much, when, and how,—when to sow, how to cultivate and shield and preserve from the destructive ravages of insects,—when to harvest, as well as how,—when to market, as well as where, by whom and to whom;—so, also, with regard to the products of the dairy, if a dairy farm—or the fruit, if raised in abundance,—and so of every thing, whether bought or sold—be able to nick the time, and never have occasion to say, had this, that, or the other thing been known, a better crop might have been produced,—or a better breed of cattle purchased, for stock raising,—or a better method of fattening animals employed,—or, when fattened, a better time for selling for the shambles, selected. These are a few of the numerous topics of which the "Economy of Agriculture" should take cognizance.

By it a man should determine whether, in the selection of a farm, it will be better for him to purchase a grain farm, or a grass farm. If, in the light of Economy, he shall determine on a grazing farm, some of the inquiries which immediately present themselves, are, How to produce the greatest and best amount of grass—How to obtain such cows as shall, from the consumption of a given amount of grass, produce the greatest and best quantity of milk for butter, or cheese,—whether it is better to sell the milk, or convert it into butter, or cheese,—or whether it be better to do all at different periods during the season,—the end in view, always being to secure the greatest dividend for the money and labor invested—whether it will be better to soil the cows, or turn them into the lot to feed upon the grass themselves—whether it will be better to raise the calves, or send them to the butcher as soon as they are old enough for the market.

Every farmer needs to know, in order to derive the greatest gain from keeping stock of any kind he may choose, how to select with

reference to the end in view. If he keeps sheep, he needs to know how to select that variety which shall convert the feed consumed into the greatest return, whether of wool, or mutton—if cattle for the stall, how to select such as shall convert their feed into the greatest amount of muscle and tallow with the least waste,—how the feed shall be prepared for the animals in order to do this; reference is to be had, also, to the temperature and ventilation of the stable where the animals are kept during the days of fattening. Experience, observation and the fruit of right experiment, can approximate very near the truth in all these matters. With reference to the breed of cattle, the great inquiry is, not, necessarily, which will grow the largest, but which will, without reference to size, convert grass and grain into gold fastest—for what else is an animal in the all-comprehensive view of Economy, but a machine to be employed for this very purpose? All else is mere fancy.

In order to reach the highest perfection in the Economy of Agriculture, it is necessary that the tiller of the soil should be the proprietor of the same. Man labors more intensely when working for himself and those directly, and rightfully dependent upon him, than under any other conceivable circumstances.

The great improvement in the art of tilling and reclaiming the soil in Flanders, is owing chiefly to Peasant Proprietorship. The Flemish people have practiced, for centuries, rotation of crops and economy of saving and making manures, that are introduced as modern discoveries in English farming, about which so much is said and written at the present day. It is conceded by English writers, even, that Flemish agriculture is *now* superior to that practiced in England. The English do not hesitate to say, that the cultivation of a poor, light soil, is superior in Flanders to that of the most improved farms of a similar kind in Britain. We surpass the Flemish farmer, say they, greatly in capital, in implements of tillage, in the choice and breeding of domestic animals generally, though it is conceded that the Flemish excel in cows. The British farmer is better educated than the Flemish; but in the minute attention to the qualities of the soil, in the management and application of manures of different kinds, in the judicious succession of crops and especially in the economy of land, so that every part shall be in a constant state of production, we have still something to learn from the Flemings—not from an instructed and enterprising peasant here and there, but from the great mass of the workers of the soil.

The most highly cultivated portions of the country, consist chiefly

of farms owned and cultivated by peasant proprietors. Spade husbandry is either wholly, or in part employed by them. Whether the land is cultivated by the spade, or plough, all the members of the family engage in it;—children doing the lighter work, such as weeding, hoeing, feeding the cows and such like. Suppose the farm to consist of six acres, which is a common area for a farm in Flanders. One man and his family can manage it. If he has a wife and three young children, all of whom are considered equal to three and a half grown up men, the family, according to the authority quoted, will require thirty-nine bushels of grain, forty-nine bushels of potatoes, a fat hog, and the milk and butter of one cow: an acre and a half of land will produce the grain and potatoes, and allow some corn to finish off the fattening of the hog, kept on the extra butter-milk, &c.;—another acre in clover, carrots, and potatoes, with the stubble turnips, will more than keep another cow. Two and a half acres of land thus suffice to furnish this family with food, while the produce of the remaining three and a half acres, may be sold to pay the interest of the purchase money invested,—wear and tear of implements, extra manure, clothing for the family, &c. Thus it is seen how a family can live and thrive on a farm of six acres of moderate land.

This is a brief detail of one six-acre farm in Flanders, given, in order to show what peasant proprietorship is doing and demonstrating on the side of Economy in Agriculture—more especially, where the soil tilled, is owned. Give a man the ownership with a title deed of a flat rock, and he will convert it into a fruitful field—but give him a ten-years' lease of a well cultivated farm, and nine chances to one, he will convert it into a fruitless waste. Wherever ownership vests in the soil in Europe, it has stimulated the poor man, or the laborer, rather, to work it even to the conveying of earth in baskets upon the back, far up the mountain side, where Nature had denied a soil, in order to render it fertile and productive of the substantials of animal nutrition.

Circumstances, which will suggest themselves to the reader, make a difference, it is true, between proprietorship in the soil, here, and in Flanders. These, however, do not essentially vary the economic bearing of the facts quoted.

Perhaps there is no department of the Economy of Agriculture, where farmers and gardeners suffer so much direct loss, as that which pertains to animal excrements and urine. There are very few farms in any country, that will produce good crops for any length of time, without the application of manure. The farmer in New England, is

ready to admit, that he has no reason to expect a plentiful harvest where he has not made a plentiful use of manure. This being granted, all animal excretions are, or should be, regarded as being of too great value to the husbandman, to be suffered to be lost, wasted, or improperly employed. After having made such arrangements with reference to saving them that nothing be lost, the next important consideration is, how to use them, various and unlike, as they are in their qualities, so as to derive the greatest returns in crops for their expenditures.

This knowledge can only be obtained by experience, the great teacher in terra-culture. In experimenting, the intelligent manipulator may derive some aid from the science and art of chemistry, as well as from direct experiment and observation. If the farmer can know what the elements of animal excretion are, when he knows how the animal has been fed, much is gained—that he can acquire this knowledge from chemical analysis, very nearly, will be generally admitted. Analytical tables, to which farmers have access, have been made, exhibiting the elements of the excretions of different animals. The urine is said to be far richer in nitrogen, alkalies and alkaline salts, than the solid excrements—yet, how few of the farmers save it in such a way as to be able to use it on their soil as a fertilizer. The humus-forming substances abound much more plentifully in the solid excrements than in the liquid. It is the remark of a modern writer and chemist, that "The solid excrements of herbivorous animals are rich in humus-forming, (organic) and seed-forming substances, (phosphoric acid, lime, and magnesia,) but poor in forcing, and leaf-forming substances; and that the urine of the same animals, is rich in substances, forming stalks and leaves, (nitrogen, potash, and soda), but deficient in the seed-forming mineral nutrients," and is better adapted for forcing purposes. The quantity, and quality, and the condition of the food, whether cooked or not, as well as the tending, treatment, and employment of animals—all have an influence upon the excrements which are to be employed as stimulants for the soil.

Every farmer should have a tank, or tanks, conveniently located, for the immediate reception and preservation of all urine, until required for use. This is one kind of economy that has been almost entirely overlooked by farmers. Facts will justify the assertion, that the best of our agriculturists lose nearly half the fertilizing elements of the animal excrementitious substances, before employing them upon the soil. To show the importance of urine, read the following statement concerning it:

If the urine of a cow, for a year, were collected, it would furnish about 672 lbs. of solid extract, which contains as much nitrogen, alone, as 560 lbs. of the best guano, and so large a quantity of potash, that, by combustion, it will yield about 170 lbs. of potash, worth, in commerce, from $20 to $25. In view of these facts, the annual urine of a cow is taxed at three guineas, or about $15, in Flanders, where agriculture has reached its highest perfection. A celebrated English farmer states, that in manuring meadow land, he has obtained far greater effect from 175 lbs. of sewer water from the City of Edinburgh, consisting, for the most part, of urine, than from 336 lbs. of stable manure, and the same quantity of guano, as stable manure, with which he manured three equal parcels of land.

In view of such facts, every reflecting farmer must concede, that he loses, annually, a large amount of fertilizing elements, in not saving all the urine of his establishment. In addition to this, much that is poured into the drain at the "back-door," to putrefy, would, if poured into a tank and saved, furnish, in the course of a year, a large amount of valuable liquid manure.

Stable manure, by being kept in pits prepared for the purpose, would be worth far more than when exposed, as it too often is, to sun, wind and rain. Under-ground stables protect it somewhat—but these are objectionable. The fumes rising from the accumulated and accumulating droppings, lying beneath the floor, constantly diffuse themselves throughout the stable where the cattle are kept, and, thus, make the stable-air exceedingly bad—rendering it impossible to give the animals anything like a healthful atmosphere. Another objection is, having the cattle stand so far from the ground. Pits for the reception of the solid excrements, and tanks for the liquids should be provided, so that all can be saved in such a way as not to be offensive, either to man or beast—for the cultivated fields need them.

When all the animal excrements are saved to the best advantage—and sufficient knowledge derived from experience is gained, so as to use them in the way that shall render them inthe highest degree productive in the return of crops, it will be found that farmers still need more. What shall be done? They must next resort to artificial manures, as auxiliaries to gain the end desired, to wit, the maximum production of every cultivated rod of ground that they till. A Saxon agriculturist of much practical experience on this subject, says, "The more extended employment of artificial manures is an advance in farming that has already opened a new era. By this means the busi-

ness of a farmer is becoming more closely approximated, than formerly, to that of a manufacturer. For whilst, formerly, our farming arrangements were conducted in the manner which the quality of manure produced on the farm itself prescribed, we are, now, free to cultivate, as may seem most profitable, every plant which is suited to the soil. Yea, still more; we can produce, as it were, with a single effort, fine harvests from worn out fields;—we can in such a case secure, in two or three years, the same results for which formerly ten or twelve years were required."

Every farmer should in addition to the animal excretions which he possesses, be in the way of employing such artificial manure as he can most readily and cheaply furnish himself with. The following, by way of suggestion, is copied from an English farm journal. Guano, Urate from the London poudrette manufactory, Bone-dust, Superphosphate of lime, Humus, Rape-cake, Woolen-rags, Sulphate and Muriate of ammonia, Saltpetre, Boast's mineral manure, Alkaline manure, Soda, Soap-boilers' ashes, Gypsum, Chloride of lime, &c. &c. Here the intelligent tiller of the soil has a fruitful theme for reflection and experiment: to wit, to learn the effect of these several manures upon his soils and how to supply them in producing his various crops—so as to learn which, of all these varieties, with others not named here, he shall, in the light of economy, procure.

The great end to be reached by the use of manures, is such a stimulation of the soil under cultivation, as to obtain from any given area the greatest possible amount of produce, adapted to the feeding of man and beast; both being alike dependent for nutrition on the vegetable kingdom. The art of feeding animals, like that of plants, is but poorly understood, even by the best agriculturists, at the present day. "Knowledge derived from experience" has been kept in the back ground by prejudice and superstition—guides of a stumbling and perverse people. There seems to be very little more known to-day on these subjects, notwithstanding the boast of progress in these latter times, than was known to Abraham, Job and Jacob. Yet it would seem that many of these great problems that lie at the very foundation of agricultural Economy, might be solved in one generation, and even in less time, by experiment—just such as the most common farmer can make. The speculations of the man of science in the laboratory can never do it, else a Liebig would have attained unto it ere this.—The chemist has done something, it is true, by way of analysis, but very little by way of didactic teaching. Such knowledge as the farmer needs and must have, in order to advance the art of agriculture and perfect its econo-

my, can only be obtained by careful observation and experience in the great laboratory in which Nature works—and works to some useful purpose—where her experiments are synthetical, rather than analytical—where she produces something when supplied with the right elements, that gladdens and enriches him who engages in partnership with her. He who, by observation and experience, has learned how to raise the maximum number of bushels of wheat, or corn, or any other grain upon an acre—and can so employ his knowledge as to produce the given result, whenever he has the opportunity, knows what is of infinitely greater value to the world when imparted, than to be able to analyze a berry of wheat, and tell the staring crowd of what chemical elements it is composed. As an aid, every intelligent man welcomes chemistry, but let no one be misled by her claims as set forth by some theoretical pretender, who is ignorant of the very first rudiments of good farming. Nature abounds in mysteries which no science can ever fathom—yet, forget not that science will aid you in experimenting in the art of plant culture. What the farmer needs to know beyond a wherefore, is, how to furnish manures containing just those elements which the seeds, planted or sown, after germination, shall need to nourish and supply them until matured and ready for the harvest. This knowledge can be gained by experiment. So, again, when the crop is harvested, how he shall feed it—if to be given to brute animals, so as to derive the greatest possible profit from such an expenditure—for both the plants and animals, thrive best, when supplied with such nutrition as is best adapted to their own peculiar wants. Nature, both in animals and plants, discovers wonderful powers of adaptation to circumstances. A plant grown in pursuit of proper nutrition, under difficulties, will be but a poor specimen from Nature's work-shop. Hence, it is reasonable to infer that all medium crops, as well as those below this standard, are specimens of this kind of production. The proposition then, that medium farming does not pay, will need no argument to establish its truth. No man can long afford to be a medium farmer. No man would long be contented with 3 per cent. interest on stocks, or money loaned, when he could just as well have 6 per cent. and a better security. Good agricultural economy is that which ends in maximum harvests, from minimum expenditures, and nothing short. It boasts not of its great number of acres under cultivation, but of the quantity produced per acre. Quantity and quality relative to the area, are its pride, rather than the great number of acres tilled. No man can afford to raise seventy-five bushels of carrots per acre, when the same

area, if well tilled, would produce one thousand;—or three bushels of rye per acre, when forty should be produced on the same surface;—nor one-half a ton of hay per acre, when four can be produced—nor wheat at ten bushels per acre, when sixty may be produced under right culture—nor corn at fifteen bushels per acre, when the best culture produces one hundred and fifty.

There are numerous other kindred topics, that might be presented for consideration in connection with agricultural economy—such as labor, whether performed by man, or by beasts, trained for the purpose—or by some other agent of power, as steam—the planting and cultivating of orchards—draining and irrigating—liquid manures as a substitute for those in common use—the employment of lime, how, when and where—the rotation of crops—subsoil-ploughing—the number of times a field should be stirred with the plough before planting or sowing the seed,—whether fall ploughing shall be abandoned,—the mode of tilling with the hoe or cultivator, or both—the surest method of destroying noxious weeds,—the best way and time of harvesting corn, and other grains—when to cut grass to be made into hay—and how to make it, so as to render it the most nutritious—the cooking of food for swine and other domestic animals—and in fine, Geognosy, Geoscopy, Meteorology, Botany, Zoology, Ornithology and Entomology, so far as these relate to the Economy of Agriculture. But instead of an Essay, these topics would furnish matter, if rightly discussed, to wit, in the light of "knowledge derived from experience," sufficient to make volumes. They are all, it will be admitted, intimately related to the topic under consideration. And the completion of the science and the perfecting of the art of the Economy of Agriculture, will never be reached, until these relations, as aforesaid, are all studied and learned in Nature's great Laboratory.

An attempt has been made in this brief Essay, to awaken the attention of farmers and others to the importance of the Economy of Agriculture—the Economy of an art that has done, and is doing more for the advancement of civilization and the perfection of man as a social being, than any other of the great family of Industrial Arts,—an art which in ancient times engaged the attention and occupied the time of patriarchs and prophets,—men who lived in close communion with God—and from which Jesus, both the Example and Savior of man, drew his most striking and instructive parabolic lessons of infinite wisdom—an art that has had attractions for a Xenophon, a Virgil, a Cato, Cicero, Cincinnatus, and a long line of names DOWN to our own ever honored WASHINGTON and WEBSTER—all

men who esteemed agriculture most worthy of their patronage, and felt honored by it—as the most ancient, as it is the most noble and honorable of Earth's vocations. The perfecting of the Science and Economy of such an art is worthy of engaging the attention of the best intellects of the race,—for the time of universal peace on Earth and good will among men will not be enjoyed until the perfection of that art, which underlies all real prosperity in every other, be attained. This is to be reached, if at all, by knowledge derived from experience and observation in the Laboratory of Nature, rather than that of the chemist. Hence the importance of every farmer's keeping an exact record of all his doings, thus accumulating facts from experience and observation, such as will aid in the completion of the science and art of husbandry and of Rural Economy.

AN ESSAY

ON ROTATION OF CROPS.

BY T. G. HUNTINGTON.

I PROPOSE to offer a few observations on that part of the science and practice of Agriculture, usually understood and embraced by the term, Rotation of Crops. This is a branch of the profession, in regard to the details of which, there is a great variety of opinion; and, if possible, a still greater variety of practice; although about the thing itself, there is not much room for dispute. It will be as well, therefore, to preface my remarks with a definition of terms.

Rotation of crops, in general, may be defined the producing upon a given piece of land, a series of crops in successive years, without much regard to the nature of the soil, or to the intervals, at which the course is to be repeated. This definition describes well enough our common practice, which we believe, in most instances, to be deficient in method, pernicious in its operation, and unprofitable in its results. A much better definition would be—the art of raising, upon a given lot of land, such a series of crops in successive years and at such intervals, that it shall yield the greatest profit to the producer with the least exhaustion of the soil. It requires, for its most suc-

cessful application, a knowledge of the soils to be operated upon, a mature experience, sound judgment, and a skilful appliance of means. A judicious rotation of crops, therefore, lies at the very foundation of good field husbandry, and no farmer should be satisfied with himself, until he has put into practice a system, suitable to his land and remunerative to his purse. No where, probably, has this branch of Agriculture been carried to such perfection as in England, Scotland, and perhaps some of the continental states. A full persuasion of the necessity of improvement in this respect, among our Massachusetts farmers, must be my apology for this essay. I have remarked that our common practice is deficient in method, pernicious in its operation, and unsatisfactory in its results. These are grave charges, it must be confessed. Perhaps, before proceeding further, it may be well to examine them. For one, I believe a careful investigation of the facts of the case would clearly sustain them. In regard to the first, for instance—a want of method. If we go through the town or county and inquire of the farmers whether they have adopted a regular system of rotation; one, that they are confident is best adapted to the soil; or, that varies, so as to accommodate itself to the different kinds of soil the farm may contain—how many of them would answer in the affirmative? Judging from personal observation, and from other sources, I venture to say, not one-fourth part. Many of us are altogether too much influenced by the fluctuations in the price of any article, we are accustomed to raise. If, this year, it brings a good price—farewell to all our resolutions to be more methodical, if we have ever formed them. Next year money must be made, and every spare rod of ground, that will produce it, is devoted to the profitable crop.

So common is this feeling, that it is matter of every-day observation, that any unusual rise in the price of a staple product, is almost sure to be followed in the course of a year or two by as unnatural a depression; and it affords a most striking proof of our want of method.

Again, if some men are fortunate enough to raise a crop, which has more than answered their expectations; instead of endeavoring to ascertain the causes that produced so favorable a result, in order that it may be applied to other fields, they will require the same land to produce the like again, and so, from year to year, until the resources of the soil are exhausted.

This is one kind of method, it is true. It is methodical severity, and methodical ruin, but it is no economical method. The very

stones, if they had a voice, would cry out for a more generous treatment than this.

I should be willing to admit, that the two classes of farmers, of whom I have spoken, are intelligent and thoughtful enough to have some general plan; although they are often swayed by circumstances to depart from it. There is another class, however, quite as large, probably, as either of the others, who have no plan whatever; or change their plans as soon almost as they make them; who break up, or seed down, plant or sow, as the humor strikes them. If their fields are a faithful transcript of their brains, it might puzzle even a phrenologist to locate the bumps of such a tangled intellect.

Thus, it would seem that our system of rotation is no system at all; or nothing that deserves the name; and, moreover, it is pernicious in its operation. Here, again, the appeal must be made to facts, for the truth of the observation. It promotes the growth of one of the most pernicious weeds, that infest our soils. We refer to the common sorrel. By far the larger portion of lands laid down to grass, for the first year, instead of filling the eye with the beauty, and the air with the fragrance of a luxuriant crop of clover, exhibit nothing but the dull red hue of the blossoms of this unsightly and useless plant. The enormous production, yearly, of its seeds,—which go directly into the hay and thence into the manure heap and to the field again,—should be enough for the entire condemnation of our present practice, unless the evil should be proved to be without remedy.

And, then, such a course can but be unsatisfactory in its results, for there is the unsightly field, there is the almost total loss of one crop; and, in its stead, a full harvest of a deadly weed. What but disappointment and loss can follow.

But, to proceed. Our subject naturally divides itself into two parts; viz., the kinds of crops to be cultivated, and the order in which they should follow each other, together with the time which should be allotted to the course.

In regard to the first point, general and long continued usage has decided what crops come within the range of most successful cultivation; and, among these, first on the list stands grass. By universal consent, New England is a grass, rather than a grain growing country. That this is our great staple, any one will acknowledge, after having observed how large a proportion of the land is devoted to this crop. He who has what is called a good grass farm, is considered as possessing one of the first requisites to successful farming, and justly

so. For, while the cultivation of the cereals is attended with much labor and some uncertainty,—the grass crop, when the ground is properly prepared, is almost always sure, and the cost of securing it is comparatively light. A very good test of its importance may be observed in the general anxiety felt, when there is danger of failure of even a part of this most important production. It is plain, then, that in our rotation of crops, great care should be taken to fit the ground to produce grass abundantly, a point on which many of us are too negligent.

Next to grass, comes Indian corn. As a hoed crop, it undoubtedly stands at the head of the list, and should occupy a prominent place in our system. Next follow potatoes, oats, rye, wheat, barley, and broom-corn where the nature of the soil admits. Perhaps no course would include all of these. Experience and observation must decide which can be grown to the most advantage. Doubtless there are other crops, especially of the root kind, which should engage a due share of attention. I have only named some of the most important. Of tobacco I have nothing to say; for though it is thought to be an excellent preparation for some other crops, and, in many instances, vastly profitable, it is my firm belief that the blessings attending its general cultivation, cannot outweigh or compare, even, with its curses, considered either in a moral or economical point of view.

We come, then, to the method of procedure. How shall we conduct our series to the best advantage? Before answering this question in detail, it may be well to name three general principles, which should always be kept in view. First, our rotation must be, as much as possible, suited to the character of the soil. Second, there must be reference to the fitting the land for a good yield of grass. Third, each crop must occupy that place in the course, which will be likely to insure the greatest success in raising it.

To the first of these, we cheerfully acknowledge that due regard is generally paid. We rarely see farmers persist in their attempts to raise crops, to which their lands are not naturally suited. The error is, rather, in the other direction. Many times, they think it impossible to do that, which a little more perseverance and skill would enable them to achieve. I might cite, for example, the growing of wheat; which, in this region, not many years since, was thought to be next to impossible; but which is now becoming quite a common crop. The principle embraces both sides of the question; for, we ought certainly to be as ready to adopt a profitable crop, which our

ground will produce, as we are careful to avoid those which are unsuitable.

In regard to the preparation of the soil for grass, the common practice is much more faulty. Indeed, I am persuaded that herein lies our chief defect. Our rotation hardly ever comprises more than two cultivated crops; unless an exception is made, in favor of the meadows, which are often kept up for a much longer time. These two crops are, generally, corn or potatoes, followed by rye, oats or wheat, with grass seeds. Now, if the object is, as it should be, to induce a good growth of grass, I contend that the means are inadequate to the end. Grass seeds, in order to take well, require a finely pulverized surface, made light and warm with manure; and the old sod should be entirely decomposed or buried. This, it is quite impossible to do on ordinary soils, in one year and with only two plowings. The second plowing brings up the old turf—an inert, sour mass; which, at that particular stage of decomposition of all others, is the most unfit to afford the nourishment, that the plants need. Without making any pretence to actual knowledge, never having had analyzed a piece of sod in this half-rotted condition, I have adopted the following theory, which has at least the merit of agreeing with the facts in the case. All vegetable matter goes through three stages of fermentation; similar to what in liquids are called the vinous, the acetous and the putrid. When a sod is inverted, as by the plow in the first season, it passes through the vinous fermentation. During this period, it throws off some gases, which are beneficial to the growing crop. Cold weather arrests the progress of decomposition and it passes into the acetous state. It now very much resembles, in its general character, the muck fresh from the swamp. It will grow most luxuriant crops of sorrel, wild wormwood or smart weed; but, as for grass, you might about as well expect to raise it upon an African desert, as upon land in such a condition. Our cultivated grasses are remarkably sweet. How, then, can we expect these to grow upon a sour or bitter soil? No wonder that we are doomed to disappointment, if we will thus persist in our attempts to contravene the laws of nature. If you ask what is the remedy for the evil, I answer, prolong the course of your rotation, until the vegetable matter in the soil has passed into a putrid, or dissolving state. Then, it will be easily taken up and used by the minute songeoles of the grass roots and so assimilate itself with the plants. But more of this hereafter.

A third general principle mentioned above was, that due regard should be had to the place that each crop occupies in the course.

This is a point of some importance. For instance, it has been observed that oats rarely do well, coming the next year after the turf is broken, being liable to blast; probably, owing to the peculiar condition of the soil at the time. Corn hardly ever produces well after buckwheat; while, on the other hand, it is well known, that potatoes and broom-corn are excellent preparatives for wheat and rye.

I am now prepared to state, affirmatively, what I should consider the proper course to be pursued, with a reasonable prospect of success; making no claims, however, to infallibility, but bespeaking a candid consideration. Actual experiment, it may be truly said, is the only sure test of the views presented, and to that ordeal I am willing they should be submitted. Our situation in the valley of the Connecticut, occasioning as it does some peculiarities in our agricultural practice, will lead me to speak of three different systems of rotation, applicable to different soils and localities. I shall begin with meadow lands, meaning by this, of course, arable meadows, or those that are seldom or never flooded. Probably no one crop occupies so much of these lands, as broom-corn. This is an important staple with us. The brush generally finds a ready market at a remunerating price, while the seed constitutes a valuable provender, and the crop is not an exhausting one. Its natural home seems to be upon alluvial flats; and here, accordingly, we find it in its greatest perfection. Evidently, then, it must occupy a large space in these localities. At any rate, owing to the natural fertility of the soil and to the ease with which they are tilled, hoed crops of some kind will always occupy the larger proportion of our lands. Thus much I am willing to concede; but I maintain, notwithstanding, that there is injury often done in keeping these lands up too long. I have in mind one marked instance, in which a lot had been kept so long under the plow, that a heavy dressing of manure failed to produce what might be considered an ordinary yield; and this, too, upon land, naturally very favorable to the crop. Five or six years are as many, as ought to be devoted to hoed crops. Then, let wheat, rye or oats follow with grass seeds. After remaining in grass, say three years, it will be again in good condition for the plow. Here is a nine years' course, viz., five in broom-corn, or other hoed crops; one in rye and three in grass. Let us compare it with nine years of broom-corn alone. I will suppose five hundred fifty pounds to be an average yield with six loads of manure dropped in the hill. This, for nine years, will amount to four thousand nine hundred fifty pounds; which, at six cents per pound, is two hundred ninety-seven dollars.

Estimating seed at fifty-five bushels per acre, we have for nine years four hundred ninety-five bushels. This, at twenty-five cents, amounts to one hundred twenty-three dollars, seventy-five cents; which, added to the price of the brush, makes four hundred twenty dollars seventy-five cents. Deduct for tillage and interest, twenty dollars a year for nine years, and we have as a result, two hundred forty dollars, seventy-five cents. Now, if we apply fifty-four loads of manure in five years, instead of nine, we may reasonably calculate upon an increase of at least two hundred pounds per acre. Seven hundred and fifty pounds for five years, amount to three thousand seven hundred and fifty pounds, This, at six cents, amounts to two hundred twenty-five dollars. Estimating seed at seventy-five bushels, we have, for the five years, three hundred seventy-five bushels, which, at twenty-five cents, would be ninety-three dollars, twenty-five cents. This, added to the price of the brush, as before, makes three hundred eighteen dollars, ninety-five cents. Deduct one hundred dollars for tillage and interest and there remains two hundred eighteen dollars, seventy-five cents; only twenty-two dollars less, than would be obtained by the other method, and which a good crop of wheat or rye would of itself cover, leaving the three years of grass, as clear gain. Having thus given my views in regard to a rotation of crops upon lands naturally favorable to cultivation, it may be as well to speak of a kind, the very opposite of this, viz., those lands, which, owing to their distance from the homestead, their inaccessibility, or their unfriendliness to cultivation, it is desirable to keep most of the time in grass. Here, our course will not admit of more than one hoed crop, which should be followed by oats, barley or spring wheat. It should be recollected, that in this course, the great object is to secure a good growth of grass. In order to this, there should be but one plowing and that should be thoroughly done. The manure should be composted, spread upon the surface and harrowed in. The next spring after the first crop has been taken off; if it has been in corn, the stubbs should be cut off close to the ground, with a bog hoe. Then, go over the ground with a heavy ox cultivator, until the hills are torn up and the whole well pulverized. The ground is now ready for the grain and grass seeds; and, if the cultivation has been what it ought, there will be a reasonable prospect of success in the undertaking. Care should be taken throughout, not to disturb the old sod, as the object is to create a fine tilth upon the surface. The other course of which I am to speak, occupies a middle ground between the two already discussed. This course extends through eight

years; four in grass and four in cultivated crops. The first crop, on breaking up the sod, may be either Indian or broom-corn, according to the character of the soil; the next, rye or wheat. Oats are not as good, unless they are cut before they are ripe and used as hay; for, they are very liable to blast, when sown upon the partially rotted turf. An excellent plan—when it can be readily carried out—is to turn under the stubble, from which the grain is taken, near the latter part of July; and, then, to sow turnip seed in drills, putting fine compost into the drills; or, when this is not to be had, ashes or guano may be strewed upon the top of the hills before the plants are up, which gives them a vigorous start. Turnips, if they are kept clean, will leave the land in fine condition for the succeeding crop, which may be roots; or, if these are not cultivated, corn again. I have known corn to do remarkably well, coming as a third crop; in one instance, producing fifty bushels per acre; and this, on land naturally not at all favorable to its production. By the end of this year, if there has been proper cultivation, the land will be ready for grass seed, which may be sown, the next spring, in connection with oats or barley.

In all that has been said, thus far, I suppose a liberal supply of manure. No good farmer will think of conducting his operations without it; but a few words in closing, on its proper application, may not be inappropriate. In the last course of which I have been speaking, it is supposed that manure is applied to both of the hoed crops; that is to say, in the first and third year. In both instances, it should be plowed in; because, in the first year, if so applied, it helps materially in the decomposition of the sod, and so promotes the growth of the crop; and, in the third year, if it is buried with the plow, it will be brought to the surface again the next spring, well fitted to be used by the grass seeds. Much of our land pays well for manuring in the hill, in addition to what is plowed in. All cold lands, especially, need this, in order to give the corn a vigorous start. Ashes and plaster answer well for this purpose, used upon an inverted sward; but if corn is grown as a third crop, it is better to use the compost. In laying down lands to grass, great good would result from the use of ashes, plaster, and perhaps lime.

I close, here, not because the subject is exhausted. My object has been to excite inquiry and improvement in this branch of our profession.

Reports of Committees.

REPORT ON FARMS.

BY M. B. GREEN.

Agriculture is not excelled in importance, not equalled even, by any other art. When it flourishes, every other branch of business thrives. More than three fourths of our population are employed in cultivating the earth. If crops are abundant, and find ready markets and remunerating prices, producers become liberal in their expenditures. Merchants, in consequence, make large sales, and manufacturers readily dispose of goods. Mechanics are employed in the erection of buildings, or in making the numerous articles of comfort, or convenience, suited to gratify the love of the ornamental and beautiful. On the other hand, if, through lack of science or industry, or of the timely rain and sunshine, the earth fails to "yield her increase,"—this great national bank ceases to discount. The farmer will buy only what he absolutely needs. Provisions rise in price as the supply diminishes. Traders have fewer sales. All classes curtail their expenses.

The cultivation of the earth is the prominent business of our people, and the leading pursuit of our nation. It employs more men and more capital, than all other trades and professions. It produces a greater amount and variety of articles, desirable and necessary, for our subsistence, our comfort and happiness. It gives to the largest class of our population that kind of employment, which develops the physical and moral powers, and allows of quite as much time for the cultivation of the mind, as any other occupation. It is cheering, therefore, to see, that so many of the leading men of our country are disposed to encourage agriculture; that our government is toiling to aid; that many of our educated men of all professions are endeavoring to make it an exact science. We confidently hope the time is

not far distant, when there will be facilities for a true agricultural education, a knowledge of *principles* and *practice*, obtained by actual observation and experiment. Then, of agriculture we shall say "It is a science, as well as an art." It is pleasing to notice the improvement, that has already been made; to observe the change, that has taken place in the public estimation of this business, and of the men engaged in it. Farmers are now better known, more respected, and have more influence in society, than at any former periods. The clergyman, or the physician, or the lawyer, is not now the only man qualified to preside at town meetings, and make a record of the transactions. The learned professions do not now furnish all those, who represent the people in the halls of legislation.

While it is admitted, however, that there has been improvement in the knowledge and practice of this most important art, it must be acknowledged that the improvement in this pursuit has not kept pace with progress in other trades and professions, and with the great increase of our population. *Relatively*, there has been a falling off; and, *absolutely*, there has been a diminution in the production of bread stuffs in our State.

Why should this great pursuit retrograde, even relatively? Why not progress as rapidly and continuously as commerce, manufactures and the mechanic arts? No good and sufficient reason can be given. Many desire to become rich faster, than to advance by the slow, but sure process of digging their treasures from the earth. Their anxiety to become affluent at once, and consequently above the toil and drudgery of tilling the ground, leads them away from home, to seek other more popular and lucrative employments, at the peril of health, and morals, and even life. Many who are engaged in this most necessary, healthful and interesting occupation, feel very little interest in their employment. They pursue it, not from choice, but from force of circumstances. Having failed to obtain other businesss, or having been unfortunate in their chosen vocation, they fall back to tilling the ground. Many cultivate their lands for immediate profit, rather than ultimate improvement. These make as little outlay as possible in the management of their farms; and, instead of investing their increase of capital, from time to time, in their legitimate business, as do those who are engaged in commerce and navigation, merchandize and manufactures; they invest in Rail Road or other stocks. Some give almost exclusive attention to one field or one particular crop, instead of studying to improve their whole farm, by adapting the crop to its peculiar soil. How easy to enrich one field and pro-

duce one large crop, by making every other part of the farm pay tribute to this one. These errors we hope to see corrected,—at least not to see them so common. We hope this important branch of business will hereafter receive more and more encouragement from government, from agricultural societies, and from men of science.

The good influence of associations, annual exhibitions, addresses, reports and statements, is perceptible in the improvement of buildings and fences, in the clearing of unseemly hedges, in the removal of stumps and bogs, and in the general appearance of comfort and thrift. One neighbor stimulates another; one learns from the example and practice of another; and each becomes more interested in his work by seeing and hearing of the successful or unsuccessful experiments of others.

The number of farms entered for premium was five, all of which were visited by the committee in June and September.

For a description of the farms which received premiums, and the manner in which they have been managed, we refer to the statements below.

STATEMENT OF MOSES STEBBINS.

The farm, which I enter, for premium, contains forty-one acres, situated near the Connecticut river, in South Deerfield. When I came in possession, in 1831, ten acres of it consisted of a poor, worn out, buckwheat field. In 1838, I resolved to have a better farm. I hauled on clay, at the rate of fifty loads per acre. Then, I spread twenty-five loads of manure to the acre; sowed two hundred pounds of plaster; plowed all in together; planted corn, and obtained a fair crop. At the outset, I tried but three acres, by way of experiment; and, after witnessing the result, I continued until I had treated the ten acres alike. After corn, I planted oats, and stocked down to clover.

By use of clay and manure, I have made all my land, as good as the best, and increased my pastures one hundred per cent., in quantity and quality of feed. I have practiced plowing deep and do so now, but in a different way from my former practice. I now plow in manure four or five inches deep; then, subsoil as deep as I can run a subsoil plow. I prefer this to running deep, in order to turn up the subsoil. I commonly plant my land two years in succession; thereby mixing soil and manure, and pulverizing the soil for grass. Instead of oats, I raise barley, which I deem far more profitable to the farmer. Where we made one hundred loads of manure in 1838, we now make three hundred and fifty loads. I haul from seventy-five to one hundred loads of earth into my barn and hog yards, annu-

ally, to absorb the liquid manures, which I consider as valuable as the solid. I think much of hogs for the manufacture of compost manure. I have used salt with good results, on both grass and wheat. For old worn out pastures, I recommend the free use of plaster, and for fruit trees, I apply salt and lime, freely, and wash often with white lye.

My farm has been divided, the present year, as follows; twenty-three acres of mowing; thirteen acres in corn and potatoes; three in barley and two in wheat. My stock consists of three pairs of oxen; three steers three years old; five cows; seven two years' old; three yearlings; one hundred fifty sheep and twenty-five hogs.

PRODUCTS.

Corn, 750 bushels at 90 cents,	$675.00	
Hay, 55 tons at $10,	550.00	
Pork sold,	250.00	
Corn-fodder, 35 tons at $5,	150.00	
Barley, 100 bushels at 85 cents,	85.00	
Cash received for labor,	75.00	
Wheat, 40 bushels at $1.50,	60.00	
Potatoes, 75 bushels at 50 cents,	37.50	
Corn-fodder sold, 2 1-4 tons at $15,	33.75	
Straw, 4 tons at $6,	24.00	
		$1940.25

EXPENSES.

Labor,	$300.00	
Corn, 200 bushels at 87 1-2 cents,	175.00	
Oats, 100 do. at 50 cents,	50.00	
Ashes, 300 do. at 14 cents,	42.00	
Plaster, 2 tons at $9,	18.00	
Clover seed, 60 lbs. at 12 1-2 cents,	7.50	
Corn-fodder, 5 tons at $5,	25.00	
Straw, 2 tons at $7,	14.00	
Interest on land, valued $3200,	192.00	
Taxes,	25.00	
		$848 50
Net profit,		$1091.75

Moses Stebbins.

Deerfield, November, 1853.

STATEMENT OF AUSTIN SMITH & SONS.

The farm, which we enter for premium, contains seventy-three acres, situated in Sunderland. It has been our aim to increase, economically, the productiveness of the whole farm, and to raise useful, and remunerating crops. This, we have endeavored to do, by

the making, saving, and proper application of manures, and by thorough cultivation of the soil.

It is our practice in raising Indian corn, to plow, or harrow in manure, at the rate of twelve or fifteen loads to the acre, and to apply a handful of ashes, in the hill, at planting. We hoe four times, and usually seed the land with clover, red-top, and timothy, for the next year's mowing.

We have put compost manure for broom-corn, in the hills, at the rate of sixteen loads to the acre, until the present year; when we have applied it, as on our Indian corn land, at the rate of twelve loads to the acre. We added half a spoonful of superphosphate of lime and plaster in the hill. We planted our broom-corn with Woodard's corn-planter, and we have never known our land, so well, and uniformly stocked, as the present year.

We prefer, for a wheat field, to turn over a rich and warm clover sward. Oats, we have nearly done raising. We plow from six to nine inches deep, and loosen the soil a little deeper each succeeding year. We usually make about three hundred and fifty loads of manure, every season.

During the present season, our farm has been divided, as follows: twenty-seven acres in mowing—ten, in Indian corn—fourteen, in broom-corn—five, in rye—two, in wheat—one, in oats—one, in carrots and sowed corn—thirteen, in pasture.

The following table correctly exhibits the products, expenditures and net profit of our farm, the present year:

PRODUCTS.

580	bushels	of corn, at 92 cents,		$533.60
11,900	pounds	of broom-corn, at 5 1-2 cents,		654.50
980	bushels	of broom-corn seed, at 40 cents,		392.00
52	do.	wheat, at $1.50,		78.00
115	do.	rye, at 87 1-2 cents,		100.05
45	do.	oats, at 50 cents,		22.50
50	do.	potatoes, at 40 cents,		20.00
50	do.	carrots, at 33 1-3 cents,		20 00
16	do.	turnips, at 25 cents,		4.00
40	tons	of hay, at $12,		480.00
23	do.	corn-fodder, at $6,		138.00
2 1-2	do.	wheat and oat straw, at $6,		15.00
3 1-2	do.	rye straw, at $5,		17.50
624	pounds	of butter, at 16 2-3 cents,		104.00
350	loads	of manure, at $1,		350.00
		Improvement of farm,		100.00
				$3029.15

EXPENDITURES.

Our own labor,	452 days,	at $1,	$452.00
First hired man,	8 months 5 days,	at $20,	170.00
Second do.	8 months,	at $19,	152.00
Third do.	7 months 13 days,	at $18,	136.00

Grass seed,	10.00	
2 bushels of seed corn, at $1,	2.00	
3 do. oats, at 50 cents,	1.50	
4 1-2 do. rye, at 80 cents,	3.60	
3 do. wheat, at $1.50,	4 50	
3 1-2 do. potatoes, at 50 cents,	1.75	
2 do. broom-corn, at 75 cents,	1.50	
150 do. ashes, at 16 2-3 cents,	25.00	
1 1-2 tons of plaster, at $10,	15.00	
Superphosphate of lime, salt, and oyster-shell lime,	40.00	
350 loads of manure, at $1,	350.00	
Interest on tillage land at $100 per acre,	360.00	
Interest on pasturage at $40,	31.20	
Taxes on the same,	32.60	
		$1788.65
Net profit, on seventy-three acres,		$1240.50

AUSTIN SMITH & SONS.

Sunderland, Oct. 4, 1853.

STATEMENT OF SAMUEL POWERS.

My farm is in Hadley and contains eighty-seven acres. Fifty-four acres lie, almost in one body, within half a mile from my dwelling. Twenty-one acres of pasture and twelve acres of woodland, are near Fort river.

I purchased, several years since, a number of acres, of very trifling value, so filled with water, as to be unproductive. But, by draining, plowing, and subduing, this land is now as beautiful in appearance and as productive, as any in this region. It has paid for all the improvements. I have, also, taken large quantities of muck or peat from my swamp, and spread it on lands, at a little distance back. This has increased both the crops and value of the land, fifty per cent or more. My pasture, consisting of twenty-one acres, is situated on Fort river; and, in consequence of being yearly overflowed, is very productive, and capable of keeping in good condition from eight to ten cows.

During the present year, I have cultivated fifty-two acres, as follows: twenty-seven acres in grass; seven, in corn; five, in broom-corn; five, in rye; two, in wheat; two, in tobacco: two, in potatoes; and two, in oats. The labor has been performed by myself and a hired man. In hay time, I employed another hand; but, during the season, I worked enough for others, to pay for him.

PRODUCTS.

40 tons of hay, at $10,	$400.00
1 1-2 do. of tobacco, at $250,	375.00
420 bushels of corn, at 87 1-2 cents,	367.50

1 1-2 tons of broom-corn, at $110,	165.00	
1 ton of pork,	160.00	
150 loads of manure, at $1,	150.00	
300 bushels of broom-corn seed, at 33 cents,	99.00	
100 do. of rye, at 87 1-2 cents,	87.50	
40 do. of wheat, at $1.25,	50.00	
80 do. of oats, at 50 cents,	40.00	
75 do. of potatoes at 42 cents,	31.50	
		$1925.50

EXPENSES.

Labor,	$170.62	
Grass seed,	4.00	
5 bushels of rye, at 75 cents,	3.75	
4 do. of wheat, at $1.50,	6.00	
4 do. of oats, at 50 cents,	2.00	
10 do. of potatoes, at 17 cents,	1.70	
Seed corn,	1.18	
8000 tobacco plants,	4.00	
150 loads of manure,	150.00	
Interest on 54 acres, worth $5400,	324.00	
Interest on 21 do., worth $1050,	63.00	
Town and county taxes,	30.00	
		$760.25
Net profit,		$1165.25

SAMUEL POWERS.

Hadley, Nov. 25, 1853.

A REPORT

ON RECLAIMED MEADOW LAND.

BY L. WETHERELL.

THE word meadow, in its first sense, signifies flat, depressed land, generally lying upon the banks of a brook, or river; as for example, the meadows on the banks of the Connecticut river, or upon Muddy, Flat or Beaver brooks in the eastern part of this county. Meadow land does not, necessarily, imply wet land, neither does it exclude such, as those will admit, who have observed the grounds situated near the streams here named. Meadow is sometimes, though improperly, used as a synonym of the word swamp, signifying low, spongy

ground, soft in consequence of the water's being suffered to remain, where draining has not been employed to remove it. These are usually seen interspersed among the hills of the four western counties of this state. The term *swale* is used among the farmers in the same sense, as the word swamp, as here defined. Such land, as is indicated by the words, swamp and swale, has been regarded, as more or less valuable, according to the quantity and quality of the grass produced. It not unfrequently holds the water that falls upon it, as well as that which runs in from the surrounding hills, bringing down, often, the choicest mineral elements of the soil, which sink beneath the water, and are thus rendered nearly worthless until the water is drained off.

The more solid matter, found in a swamp, when drained, is, sometimes, peat; a substance of vegetable origin, more or less saturated with water, consisting of roots and fibres in almost every stage of decomposition, from the natural woody substance to the almost perfect black vegetable mould. Mr. Shipman's reclaimed swamp, in Hadley, furnishes one of the best specimens of this quality, that has come under the observation of the Committee.

Mud, such as is found in some of these swamps, is a moist, soft earth, differing essentially from peat. Swale mud is more thoroughly decomposed, than peat, and resembles it, less than it does muck, a decomposition of vegetable matter—more completely disorganized than peat. It is not so easy to draw a dividing line between swamp mud and muck, as it is to use the two words. The difference between them and peat, is very distinct and marked. Mud and muck seem, generally, to be so entirely disorganized, as to leave scarce a trace of vegetable substance, and, in some cases, none whatever. The mud in the lowest parts of the land bordering upon the brooks, in the eastern part of this county, is of this kind—and is so deep that a hay-pole, twelve feet in length, may be pressed into it, without touching bottom.

Whether these mud swamps will ever be drained, it will be, probably, for some future generation to determine. If the work is ever accomplished, it will be done by great expenditure of money and labor. When drained, they will furnish most valuable lands for tillage—which, in their unreclaimed state, are nearly valueless, except as a dwelling place for toads, frogs, snakes, moles, snipes, woodcock and blackbirds. Alas, for this numerous hoard of swamp aborigines, when these low lands shall be reclaimed from the dominion of water, and turned into rich fields of the very best tillage land, of which

New England can boast. This is no groundless speculation. Mr. Shipman's reclaimed land, in Hadley, is, this very day, worth more per acre, than the very best meadow land in the world-renowned Connecticut valley, for the reason, that a given amount of labor and manure, will produce more tobacco—more Indian corn—or broom-corn—or potatoes, than the same expenditure will yield on the best alluvial on the river of pines. Such a fact should cause every man who owns a peat swamp, to smile in view of his treasure. For, when drained, it may be rendered not only very productive—but will furnish, also, material to reclaim worn-out old fields. Many are beginning to believe, that these lands, that have been deemed worthless swamps, are the most desirable for improvement.

The day is not far distant, when a good farmer will be ashamed of his neighbor, whose unreclaimed swamp furnishes a dwelling place, through the warm season, for croaking frogs, toads and peepers. The time is at hand, it is hoped, when all the swamps and swales of Massachusetts will be drained and tilled, and thus rendered productive. Many acres in this county have already been reclaimed, and made to bear much produce. There are more, however, that remain unreclaimed, and unproductive.

Four entries, of what were called reclaimed meadows, were made. The Committee viewed them all. Only two pieces came within their province, to wit, those entered by Messrs. Montague and Smith.

STATEMENT OF ALBERT MONTAGUE.

I offer three acres of reclaimed meadow in Sunderland. I can give an *accurate* statement of the method and expense of reclaiming only one acre, and of the amount of produce obtained therefrom. The entire piece lies in a swamp of about ten acres, which has been partially drained, from time to time, since 1833. By draining at considerable expense, and overcoming opposition of neighbors, who were not willing, at first, that I should cut a drain through their lands—although their lands became twice as valuable, in consequence of the drain—this whole swamp has been very much improved, and yields much good feed, as well as much that is sour. My lot of three acres, to which I invite your special attention, lies near the south end of this swamp, being as low as any part of it. I mowed it for a series of years previous to 1852, and obtained a little coarse bog hay, barely sufficient to pay for my labor,

In August 1851, immediately after mowing, I commenced draining, more faithfully, and bogging it evenly, to fit it for the plow, as

most of the stumps had already been removed. I then plowed, about seven inches deep, taking pains to have it well turned, and the furrows lie nearly flat. I turned up some two or three inches of muck, which lay until May 1852, and being, then, well pulverised with a harrow, I was enabled to cultivate it without much expense.

I planted on the 22d of May, spread a light coat of manure, composted of barnyard manure and sand, in equal proportions, using at the rate of eight loads of compost to the acre. I added twelve bushels of ashes to the acre, putting them in the hill. I planted indian corn, hoed three times, and cultivated between the rows. Just before the last hoeing, I sowed grass seed at the rate of one peck of herds grass, four quarts of red top, and five pounds of clover to the acre, and mixed in a little turnip seed. I cut my corn Sept. 18th, and husked, about the middle of October, one hundred fifty-seven bushels of good ears of corn, on one acre, and about three tons of corn fodder. The weight of the fodder was obtained by weighing one stack, and multiplying it by the number of stacks. I finished pulling my turnips the 20th of November, and had one hundred twenty-five bushels, on one acre. In July last, I cut a fair crop of good hay, estimated by competent judges, at two tons to the acre. I think I should have had a greater crop, had the season been favorable. The muck was dry enough to burn well, a long time before the grass was cut. The land is now in good condition. The grass thickens so well, that I expect a heavier crop of hay next season. I have computed the expense of reclaiming one acre from its condition—in August, 1851—when it was drained and the stumps removed.

PRODUCE.

78 bushels of corn, at 83 1-3 cents,	$65.00	
3 tons corn fodder at $6,	18.00	
125 bushels turnips at 12 1-2 cents,	15.62	
2 tons hay at $7 per ton,	14.00	
		$112.62

EXPENSES.

Bogging and removing bogs,	$6.00	
Draining,	3.00	
Plowing and harrowing,	6.00	
Manures, compost and ashes,	10.00	
Planting and hoeing three times,	5.00	
Grass seed,	1.50	
Corn,	6.00	
Turnips,	3.00	
Hay seed,	2.50	
		$43.00
Net gain on one acre.		$69.62

To this might be added the value of the land or nearly so; for before I commenced in August 1851, there was no net increase from it —the bog hay barely paid the labor of getting it.

ALBERT MONTAGUE.

STATEMENT OF EDMUND SMITH.

The piece of meadow which I offer for premium, contains about three acres, in Hadley. It is the centre of a lot of nineteen acres and a half, which I bought in 1840, and was then worth five dollars per acre. There was some wood on the north side—the south side was higher, and part had been plowed. In 1842, I mowed the brush to see if I could make a piece of swamp-mowing; but it proved worthless, in consequence of the water flowing from a large tract of swamp on the north side. It was so wet, that nothing grew of any value. I had cut a ditch, west of this piece of land, running north and south across the lot, which took off some of the water. The season was very dry in August, 1845, and I thought I would try the experiment of plowing. I dug the stumps and put them into a fence— used a large plow, drawn by four yoke of oxen, and had a man with a bog hoe to relieve the plow whenever it clogged or stopped. We were eight days plowing three acres, ten inches deep, beds four rods wide. The furrows drained off the water into the ditch on the west side. The next spring I sowed oats and hay seed, at the rate of eight quarts of herdsgrass, three pounds of clover, and four quarts of red top seed to the acre. The crop of oats was better than I expected. The hay seed came up well. For four or five years after it was seeded, I think there was at the rate of one and a half tons of hay to the acre, worth six dollars per ton, standing. The north land—about three fourths of an acre—I plowed and planted in the summer of 1850 with potatoes and broom corn, manuring in the hill. The next spring, I sowed oats and hay seed—had a good crop of oats—the hay seed came up well. I cut from this piece, the past two seasons, at the rate of two tons of good hay to the acre, and have never manured it, except in 1846. The remainder of the three acres, I plowed last fall, about eight inches deep. It was planted in May and manured in the hill with oyster shell lime and plaster. I think the crop equal to fifty bushels or more of shelled corn to the acre. The land, since it was first planted, has yielded a yearly income of six dollars per acre; but, the last two years, the income has been greater.

RESULT.

Present Value of the land, $50 per acre, - -	$150.00

EXPENSES.

First cost, at $5 per acre, - - - -	$15.00	
Clearing brush and stumps, - - - -	20.00	
Plowing, - - - - - - - -	30.00	
		$65.00
Net profit, - - - - - - - -		$85.00

EDMUND SMITH.

REPORT ON PLOWING.

BY. N. G. TROW, M. D.

Was the plow used by Adam? "And the Lord God planted a garden eastward in Eden, and there he put the man whom he had formed."—*Gen. ii:* 8. After planting, we find that "The Lord God took the man, and put him into the garden of Eden to dress it, and to keep it."—*Gen. ii:* 15.

Let us, for a moment, contemplate the man, created by divine wisdom for agricultural pursuits. In his physical nature, he was a finished production of infinite skill. Intellectually, as a perfect model, he must have stood at a height, that none of his descendants can hope to reach; while, upon his moral nature no blighting stain had fallen. The lineaments of an endless life were his.

For such a man, the cultivation of the ground was deemed by the Creator, a suitable employment. But we are not informed in regard to the manner in which Adam carried on his farming operations. We are not told, whether he used a spade or plow, rake or harrow, hoe or corn-planter. We feel quite sure, however, that in the absence of the sons of the "Emerald Isle," he could not have relied exclusively on the spade, in preparation of the soil, even before the thorns and briers came. It will not at all surprise us, if at some future day, a Layard should exhume from the garden of Eden the original pattern of the genuine Michigan plow.

To the successful prosecution of agricultural pursuits, a thorough preparation of the soil for the reception of seed, is essential. One of the most, if not, indeed, *the* most, essential implement for the accomplishment of this object, is the plow. The office of a plow is to stir and turn over the soil from a suitable depth, leaving it in a light and thoroughly pulverized condition. It is not enough that the ground is simply turned upside down. A plow may be capable of doing this in the most perfect manner, and still be very imperfect; for, it is easy to see that, so far as it fails to pulverize and render the furrow light, a necessity is created for the additional labor of the harrow.

It is proper, also, in forming our estimate of the true value of a plow, to consider the strength of team necessary, and the ease with which it can be managed.

In regard to the question so much agitated at the present time

whether the plow shall run deep or shallow, we say, as a general rule, let the plow run deep, or else follow it with the subsoil. We believe that, in this conclusion, we are sustained by reason and experience. A given quantity of soil may not occupy a larger space, after having been thoroughly stirred, than it did in its natural state; still, its new condition is more favorable to the growth of the plant, whose roots are to penetrate and draw their sustenance from it.

To any one who has observed the great depth to which the delicate fibres penetrate, it is perfectly obvious, that every obstacle should be removed, which might hinder their progress. Still farther, other things being equal, we suppose it to be a point which experience has fairly settled, that the ability of a plant to sustain itself during a drought, will correspond with the depth to which the soil has been stirred, and it would seem strange, if in a section so liable to suffer in this way as our own, any farmer should fail to avail himself of deep plowing.

REPORT ON MANURES.

BY SAMUEL POWERS.

Every farmer has on his own farm, valuable materials for compost manure. The modes of manufacture and of application are well known. Let the good farmers of old Hampshire awake to the importance of making compost by hundreds of loads, and spreading it *broadcast* on the lands to which it is best adapted. You will double your crops and enhance the value of your lands in like proportion. Mr. Rankin's method is worthy of imitation.

We recommend the turning in of green crops, as a fertilizer of the soil. Mr. Kelita Hubbard, of North Sunderland, has been successful, as appears by his statement of the benefits derived from actual trial, the past two years. As he has abundance of muck in his possession, we hope he will dig it out and apply it to his land, to which it is well adapted, spreading it without measure, and be rewarded accordingly.

The valuable experiments of Mr. Albert Montague, of Sunderland,

are worthy attentive consideration. Every farmer would do well to make similar trials, and he will soon know what are his most profitable fertilizers. Mr. Montague's experiments show that super-phosphate of lime, whatever may be its intrinsic value and its usefulness on other soils, is not profitable for farmers whose lands are low, wet and cold. Providence has given him a muck swamp—he has no occasion for super-phosphate, at $5 a bag.

STATEMENT OF ANSEL A. RANKIN.

In making my statement, perhaps it may be well to give the construction of my barn cellar, in which I make my manure. My cellar is sixty feet by forty. My barn points or is open on the west side; my stables for neat cattle are on the east side, and under them is my hog-stye. Into this stye, the excrements and urine of the cattle pass. My cattle are stabled every night during the summer, as well as winter. I clear out the whole of the manure in the spring, and then before erecting the pens, I cart in as much loam, as is practicable. This is done easily, as the cellar is sufficiently deep to admit of dumping the cart. I then erect the pens and let my swine commence their operations. As fast as occasion requires, I add fresh loam, and spread the excrement from the cattle, if the swine do not root it sufficiently. By this method, I have made from six swine, one horse, two oxen, and four cows, one hundred forty cart loads of first rate manure. I consider the urine of as much value as the solid part of the excrement.

Ansel A. Rankin.

Pelham, October 26, 1853.

STATEMENT OF KELITA HUBBARD.

I have practiced turning in rye as manure, for several years, with good success. I plow my land, as soon as convenient after the crop is taken off. The feed in the fall will pay for plowing and seed. I turn the crop in the Spring, where the soil is light. I think it is equal to five loads of manure to the acre. It destroys the weeds, pulverizes the land, and thus saves much labor in the cultivation of the next year. Nearly seed enough scatters, if the crop is dry, when gathered. It can be plowed when the team has but little to do, and can get their living in the pasture.

Kelita Hubbard.

Sunderland, October 27, 1853.

EXPERIMENTS OF ALBERT MONTAGUE.

In these days of progress, when every one wishes to be profiting by his neighbor's experience, we are liable to do as our neighbor has done, without considering whether it will be for our benefit. We are apt to think what has produced great crops for him, will certainly fill our barns and granaries. Do we not need a *little* of the conservative, as well as much of the *progressive*. I am led to these reflections from the fact of having in a small way, during the past season, experimented faithfully with foreign manures, but have not received the anticipated benefit. I propose to state these experiments with their cost and profit. My farm lies in Sunderland. The soil is sandy loam, with a trifle of marl. It is rather low, so much so, that in cold or wet seasons, corn is liable to be bitten by frost, before fully ripe, unless it gets an early start. I have usually, for this reason, put part of the manure, applied to my corn land, in the hill. Last spring, I purchased two bags of Prof. Mapes' Improved Super Phosphate of Lime, and used it upon several different pieces, in the following manner:

Piece No. 1 was grass land which had been top dressed for four or five years. Upon thirty square rods I spread thirty-seven and a half pounds of Improved Phosphate, which, when applied, cost one dollar, twenty-five cents. Upon a piece adjoining of like soil, in same condition, I applied the same value of rotted manure and obtained one-fourth more hay from the manured ground.

Piece No. 2 was grass land which had been top dressed with well rotted manure. I sowed thirty-seven and a half pounds of Improved Phosphate upon thirty rods—which cost, when applied, one dollar and twenty-five cents. I cut about three hundred pounds more of hay from these thirty rods, than from an adjoining thirty rods treated in the same manner, except that Phosphate was not applied.

Piece No. 3 was Broom-corn. Upon two rods I put five pounds of Improved Phosphate. I manured two other rods with manure from my hog-pen, at the rate of ten loads to the acre, which was of about the same value as the Super Phosphate. I applied both manure and Phosphate in the hill. The result was, that the two rods planted with Improved Phosphate produced about half as much Broom-corn, as the two rods, fertilized only with hog manure.

Piece No. 4 was manured in the hill, just before planting, with Improved Super Phosphate of Lime, put upon alternate rows. The rows where it was applied were much the largest and best colored, during the second and third hoeings—the earliest in ripening—and I think will yield fifty pounds more of brush.

Piece No. 5 was one-fourth of an acre of Indian Corn, on which I applied forty pounds of Improved Phosphate, dropped on manure in the hill. The result was about two and one half bushels of corn more, than on an equal quantity of ground, of similar soil, treated in like manner, except that the Improved Phosphate was not applied.

This finished one bag of the Phosphate—the expense of it applied, was $5, and the extra amount received from its use was about $10, and my net gain $5.

I experimented, in like manner, upon other pieces of Broom-corn and Indian corn, both before and after planting, and during the first and second hoeings—but could see no effects whatever from it.

I also purchased twenty bushels of oyster-shell lime, and applied it for corn—some in the hill, and some broadcast—some with, and some without manure—but, if there is any goodness in it for my soil, it is yet to be seen.

I also purchased salt to assist me in my labors to make corn grow. I put some in the hill, sowed some at the rate of five bushels, and some at the rate of one bushel to the acre. The corn all grew alike, and the worms eat it without reference to the salt.

Another experiment was successful. In Aug. 1853, I made a muck heap from the swamp, and let it lie exposed to frosts and air, until about the middle of April. Then I carted it to my lot, designed for corn, and, there, mixing three loads of it with one load of stable manure, and one bushel of ashes to a load—which caused it to heat powerfully—I made a compost, which I applied in the hill, side by side with manure not so composted. The corn upon the compost was larger, of better color in June and July, and was heavier when harvested. The land upon which I put it, is rather poor—not my best corn land. I think the yield will be thirty-five to forty bushels to the acre. I used three loads of manure, and nine loads of muck to the acre—valued at six dollars. Others may receive great benefit from artificialmanures, but some may, with me, think that so long as nature has provided, in our swamps, vast stores of that which will cause corn to grow, and the "wilderness to bud and blossom as the rose," it is best to draw upon the swamps.

ALBERT MONTAGUE.

Sunderland, Oct. 20, 1853.

REPORT ON CROPS.

BY SIMEON CLARK.

The importance of the cultivation of the cereals, for food and revenue, is generally appreciated, with the exception of the wheat crop, to which our farmers, for several years, have paid very little attention. Fifteen or twenty years ago, considerable interest was felt, in consequence of a bounty offered for its production by the State Legislature. Large quantities of wheat were then raised, sufficient for

the consumption of the farmers themselves. Since the bounty was withdrawn, very little wheat has been raised. The business has fallen into disrepute with farmers, and the opinion is entertained, that it cannot be raised as a remunerating crop, except on new land. This opinion is believed to be erroneous. It is, indeed, a mooted question, but the time has come, when it may be settled, as its importance demands. Wheat, in its various forms, constitutes the largest portion of our diet. The increasing price of the article, and consequent drain upon the pockets of the farmers, should awaken their attention. There is encouragement for renewed efforts to cultivate wheat, in the fact, that some of the enemies with which farmers have had to contend in its cultivation, have disappeared. Insects, for example, to some extent, and prejudice, we trust, to a much greater extent. Science has begun to shed *her* light, and we have learned, or begun to learn, the constituents of the plant or grain. The elements of the plant are derived from the soil and it will not flourish where these elements are wanting. Chemistry here steps in to aid the farmer, by analysis of the plant, tells him what these elements are, and, by an analysis of the soil, which of these elements are wanting in the soil. All that is necessary to solve the problem, whether wheat can be raised here as a remunerating crop, is a well conducted experiment on scientific principles. Let the farmer get the soil of a certain field analyzed, and ascertain what particular ingredients are wanting to furnish food for the plant, supply that deficiency, and tell us the result. Till this is done, we shall still hold to the opinion, that wheat can be raised here with profit.

We suggest to the officers of the Hampshire Agricultural Society, the propriety of offering a liberal premium for the best experiment in raising wheat, conducted in the manner suggested in the preceding remarks.

We are happy to state, that increasing attention is now given to this subject, as the increasing number of competitors for premiums on wheat crops, will testify. Four entries were made, accompanied by satisfactory statements in relation to the manner of cultivation, and expense of the crop. To these statements the attention of the members of this society is invited, and, also, to the statements of successful competitors for premiums on other crops. These experiments are very interesting and instructive.

CORN CROPS.

STATEMENT OF N. & B. SMITH.

The piece of corn we offer for premium, contains one acre and five rods. It was mowed three years previous to 1853, and not manured during that time. In December, 1852, it was plowed with the Michigan plow, eight inches deep. A compost was made upon the lot—containing about twenty loads of clear manure and thirty bushels of oyster-shell lime, slacked in a brine, made from two bushels of salt. This compost was spread upon the furrows and harrowed in. The corn was planted by a corn-planter, on the 14th of May. Ten bushels of shell lime and ashes were dropped by a machine. The corn was hoed three times and grass seed was sowed at the third hoeing. On the tenth of September, we harvested the crop.

VALUE OF CROP.

98 bushels, 22 quarts, at 92 cents,	$90.80	
4 baskets soft corn,	1.00	
3 tons of fodder, at $5,	15.00	
		$106.80

EXPENSES.

20 loads of manure,	$20.00	
30 bushels of lime and 2 of salt,	3.75	
Plowing, hauling manure, &c.,	8.00	
Spreading manure and harrowing,	2.00	
Planting and seed,	1.00	
Hoeing and cultivating,	10.00	
Cutting and stacking,	3.00	
Carting and husking,	8.00	
Interest on land,	6.00	
		$61.75
Net gain,		$45.05

N. & B. Smith.

Sunderland, Nov. 15, 1853.

STATEMENT OF R. T. WHEELOCK.

The acre, on which my crop of Indian corn was raised, is part of a field of three and three-fourths acres, in Amherst. This field is a hard, stiff, loamy soil resting on a subsoil of gravel, with a sprinkling of cobble-stones. It has been pastured. About six years previous to my laying it down to pasture, it had been apparently exhausted, by cropping, of every particle of food, capable of nourishing plants. In 1841–2, I attempted to cultivate this lot, and the result

was nearly a total failure. So lifeless was the soil, after turning it with the plow, that neither sunshine, rain, nor good cultivation, seemed to pulverize it, or to render it capable of sustaining a poor crop. Two methods of procedure suggested themselves to my mind; either to manure liberally and continue to cultivate, or to stock it down to pasture for a few years. The latter course I adopted. I sowed it with rye and stocked it down. The seed took remarkably well, and, judging from the appearance of the pasture from year to year, I thought it gave unmistakable signs of improvement. Last spring, I concluded to make one more trial. About the first of May, I commenced plowing it from six to seven inches deep; and, to my surprise, I found a thick, rich, heavy turf. On working this, it pulverized immediately after coming in contact with the atmosphere. I harrowed the land twice, manured in the hill, at the rate of eight loads to the acre, using a compost, one-half from the barnyard, the other half from the slaughter-house. I hoed three times, and ashed one-half of the field after the first hoeing. The corn was cut and stacked, about the middle of September, and husked, the last of October. The yield was one hundred and twenty-five bushels of ears, equal to sixty-two and one-half bushels of shelled corn. The whole field yielded three hundred and seventy-one bushels of ears. I think there was a loss of from five to eight bushels per acre, in consequence of an east wind, about the last of July, which prostrated it flat upon the ground.

VALUE OF CROP.

62 1-2 bushels, at 83 cents,	$51.87	
1 1-2 tons of corn fodder, at $5,	7.50	
		$59.37

EXPENSES.

Plowing,	$3.75	
Manure and spreading it,	9.00	
Planting,	1.50	
Hoeing,	3.00	
Seed,	.25	
Cutting and stacking,	2.00	
Husking,	3.75	
Drawing to the barn,	1.00	
Interest on land,	4 50	
Ashes and ashing,	1.00	
		$29.75
Net gain,		$29.62

R. T. WHEELOCK.

Amherst, Nov. 17, 1853.

STATEMENT OF GEORGE DICKINSON.

The piece of land on which this crop of corn was raised, is first-rate alluvial meadow, in Hadley, and contains, according to the surveyor's report, four acres and ninety-eight rods. For seven years previous to the spring of 1852, three acres of it were mown, and two crops were produced, nearly every year without manure. The remainder was planted with broom-corn, four years previous to the spring of 1852. The land was plowed about the first of May, 1852, manured in the hill, and planted with broom-corn. The yield was about eight hundred pounds to the acre. I plowed, the second week in May, spread forty-eight loads of manure, harrowed it in, and planted, the last of the month, in hills about three feet by three feet four inches. I cultivated with a horse, hoed three times, and cut over again in August. The crop was cut and stacked, the third week in September, and husked in October. The yield was five hundred and one baskets—nineteen quarts to the basket—weighing thirty-three pounds each, and amounting to two hundred ninety-five bushels and 12-32ds, at fifty-six pounds to the bushel. I would here state, that the crows hooked, as it was thought, about a quarter of an acre.

VALUE OF CROP.

295 bushels, at 80 cents,	$236.00	
Corn fodder, by estimate,	27.00	
		$263.00

EXPENSES.

Interest on land, at $200 per acre,	$54.00	
48 loads of manure, at $1.25,	62.00	
Labor,	77.50	
		$193.50
Net profit on 4 acres, 98 rods,		$69.50

GEORGE DICKINSON.

Hadley, Nov. 24, 1853.

WHEAT CROPS.

STATEMENT OF WASHINGTON MILLER.

I offer for premium a crop of wheat, raised on one acre, in Sunderland. From this acre I took a fine crop of potatoes, last fall. The year previous, the land was a piece of old meadow. I harrowed and manured in the hill, putting a small shovelful of compost, and a handful of lime and ashes in each hill. About the middle of September, I plowed and sowed a bushel and a half of pure seed wheat, selected from the largest heads in the bundles of my previous crops.

In October, I sowed three bushels of stone lime, which had been soaked in brine; and, last spring, I added eight bushels of oyster shell lime, that had been brine slacked. I reaped, about the 12th of July, thirty three bushels and three pecks, weight measure.

VALUE OF CROP.

33 3-4 bushels, at $1.50,	$50.50	
Straw sold,	5.00	
		$55.50

EXPENSES.

Seed,	$2.25	
Plowing and harrowing,	3.00	
Lime,	2.69	
Harvesting and threshing,	5.56	
Interest on land,	6.50	
		$20.00
Net gain,		$35.50

WASHINGTON MILLER.

STATEMENT OF N. & B. SMITH.

The quantity of land, on which our crop of wheat was raised, was one acre and seven rods, in Sunderland. In 1851, manure was spread upon the land, and a crop of Indian corn taken off; grass seed was sowed, at the third hoeing. In June 1852, a crop of clover and herds-grass was cut, yielding about one and a half tons. We harrowed with a seed harrow, plowed deep, and rolled before sowing wheat. The quantity of seed used, was a bushel and twenty-two quarts. We sowed and harrowed, Sept. 3d, 1852, and harvested July 12th and 13th, 1853. In the spring we applied five bushels of oyster-shell lime, slacked in the brine from a bushel of salt; also five bushels of ashes. This dressing appeared to increase the crop, and to strengthen the straw, so much that a very small part of it lodged.

VALUE OF CROP.

35 3-4 bushels wheat,	$53.62	
2300 pounds of straw,	7.00	
		$60.62

EXPENSES.

Seed,	$2.58	
Plowing, harrowing, rolling and sowing,	3.75	
Harvesting and threshing,	7.00	

Lime, ashes and salt—preparing and applying the same,	3.00	
Interest on land,	7.00	
		$23.33
Net gain		$37.29

N. & B. Smith.

RYE CROPS.

STATEMENT OF GEORGE DICKINSON.

The land on which this crop was raised, contains three acres and thirty-six rods of second quality meadow land. In 1852, it was planted in corn, and manured at the rate of ten loads to the acre, spread on and harrowed in. After the corn had been cut and stacked, the rye was sown, at the rate of one bushel and one peck to the acre. I harvested in July, threshed in August, and the yield was one hundred thirty bushels and eight quarts,—averaging forty bushels and ten quarts per acre, at fifty-six pounds to the bushel.

VALUE OF CROP.

130 1-4 bushels, at 80 cents,	$104.20	
3 1-7 tons straw, at $6,	18.86	
		$123.06

EXPENSES.

Interest on land, at $100 per acre,	$19.50	
Labor,	20.75	
Team,	8.00	
4 bushels seed, at 75 cents,	3.00	
		$51.25
Net profit,		$71.81

George Dickinson.

Hadley, November 24, 1853.

STATEMENT OF N. & B. SMITH.

The land on which our rye was raised, contains one acre, seven and a half rods. A crop of wheat was taken off in 1852, yielding about twelve bushels per acre. No manure was applied, after the Spring of 1851, and then it was put in the hill for broom-corn. The rye was sowed on the 8th of September, at the rate of one bushel to the acre, and harvested on the 15th of July. The land was plowed deep, and thoroughly harrowed.

VALUE OF CROP.

33 1-2 bushels rye at $1,		$33.50
2900 pounds of straw at $6 per ton,		8.70
		$42.20

EXPENSES.

Seed,	$1.00	
Plowing, harrowing, and sowing,	2.00	
Harvesting,	2.50	
Threshing,	2.00	
Interest on land,	6.00	
		$13.50
Net profit,		$28.70

N. & B. SMITH.

Sunderland, Oct. 22, 1853.

BROOM-CORN.

STATEMENT OF GEORGE DICKINSON.

The land on which this crop was produced, comprises four acres and seventy rods of my home lot in Hadley. I have planted nearly ten acres of it, for the past four or five years. The remainder has been in mowing, and a part, perhaps, was never before plowed. The turf was plowed in the fall of 1852, and the remainder in the spring of 1853. I applied fifty eight loads of manure, harrowed in, and planted the last of May. In consequence of a failure of the seed, on a part of it,—I planted over, the 6th of June. I cultivated with a horse and hoed three times. The broom brush was cut, and housed the first and second weeks in October. As I have been, as yet, unable to scrape it all, I cannot state certainly the full amount of the crop, but can estimate it very nearly.

VALUE OF CROP.

4448 pounds brush, at 5 cents,	$222.40	
13259 pounds seed at one cent,	132.59	
		$354.99

EXPENSES.

Interest on 4 1-2 acres, at $200 per acre,	$54.00	
58 loads manure, at $1.25,	72.00	
Labor,	93.25	
Team,	18.00	
		$237.25
Net profit,		$117.74

GEORGE DICKINSON.

CARROTS.

STATEMENT OF O. & F. H. WILLIAMS.

The half acre of carrots which we enter for premium, is a sandy loam. Part of it was in carrots last year, and the remainder has been in grass, for twenty years. We plowed with a Michigan plow, eight inches deep, and planted in rows from eighteen to twenty inches apart.

VALUE OF CROP.

348 bushels, at 25 cents,	$87 00

EXPENSES:

Plowing,	$1 25	
Harrowing,	75	
Manure, 10 loads,	10 00	
Carting and spreading,	2 00	
Planting with corn-planter, in drills,	75	
Three-fourths of a pound of seed,	75	
Plowing with small cast-steel plow weighing 25 lbs., and thinning,	5 00	
Second time with plow,	2 00	
Harvesting,	6 00	
		$28 50
Net profit,		$58 50

O. & F. H. WILLIAMS.

Sunderland, Oct. 26, 1853.

TURNIPS.

STATEMENT OF O. & F. H. WILLIAMS.

The half acre of turnips, which we enter for premium, is a sandy loam. The land has been in grass for the last three years. We turned the sward under, the 5th of July, after taking off a crop of grass, and cutting the furrows from seven to eight inches deep.

VALUE OF CROP.

250 bushels, at 20 cents,	$50 00

EXPENSES.

Plowing,	$1 25
Harrowing,	75
Eight loads of compost,	6 00

Carting and spreading,		2 00
Sowing with corn-planter, in drills,		50
Half a pound of seed,		34
Hoeing and thinning,		3 00
Plowing with light cast-steel plow weighing 25 lbs.,		1 75
Harvesting,		4 00
		$19 59
Net profit,		$30 41

O. & F. H. Williams.

Sunderland, Nov. 5, 1853.

HERDSGRASS SEED.

STATEMENT OF GEORGE DICKINSON.

The land on which this seed grew, lies in Hadley. It is a stiff clay loam, and measures two acres, sixty-nine rods. A crop of oats was taken off, in 1852. In August, the land was plowed and subsoiled to the depth of twelve inches, and sown with two bushels of seed, harrowed in. The grass was thin, the present season. A part of it was mowed, the first week in August, and the remainder I cradled and scraped, the second week. The yield of seed was three bushels and thirty-one quarts. A sample of it was exhibited at the Fair.

VALUE OF CROP.

3 bushels 31 quarts of seed, at $3.50 per bushel,	$13 89	
1 1-2 tons of hay, at $8,	12 00	
		$25 89

EXPENSES.

Interest on land, at $40 per acre,	$6 00	
Labor,	9 00	
Team,	5 25	
Bushel of grass seed,	3 50	
		$23 75
Net profit,		$2 04

George Dickinson.

Hadley, Nov. 24, 1853.

REPORT ON FRUIT TREES.

BY WILLIAM C. FOWLER.

The culture of Fruit trees has always received the attention of the inhabitants of Massachusetts, as a matter of high importance in its relations to beauty and utility. While the soil was new, it contained all the elements necessary for their growth; so that a crop of apple trees was raised with as much certainty as a crop of wheat. But afterwards, when some of the elements were exhausted from the soil, the orchards planted failed in vigor of growth and in perfection of fruit. The trees were smaller and shorter-lived, and the fruit was inferior in size and number. Their enemies, too, of the insect tribe, —if not from increase of number, at least from diminished power of resistance in their victims,—were more successful in their attacks. As cider became less in demand for the table and for the distillery, and the orchards became thinner and less productive from the axe or from natural decay,—while the population of the state increased,— the supply of fruit became less, while the demand for the table or for culinary purposes became greater.

What then shall be done to supply the increased and increasing demand? The answer is,—Increase the number of growing trees; improve the modes of cultivation. As nature in the diminished fertility of the soil does less; art reinforcing nature, must do more. By studying the laws of vegetable life, by the application of appropriate manures, in short, by proper cultivation, fertility can be communicated to the soil, vigor to the growth of the tree, and improved flavor and increased size to the fruit.

It is the object of the Committee, in making their report, to throw together a few brief remarks for the benefit solely of the young and inexperienced cultivator, in the shape of *Rules*, without accompanying them with a statement of the principles on which the rules are founded. Those who seek for the foundations of these rules in the conclusions of science, can find them elsewhere.

1. Plant a Nursery. Let your nursery consist chiefly of apple trees. But let it also contain pear trees, cherry trees, peach trees, plum trees, and grape vines. Let them all be seedlings, obtained from good seed; unless the quince and the grape form exceptions. Let the nursery be planted in a deep, rich soil, and be kept

in a rapidly growing condition by the free use of manure and the hoe. Let trees which you remove to the orchard or the garden, be replaced by other trees, in order to meet your future wants. Let the trees in the nursery be so far distant from each other, as to leave full space for the roots and for the sun, and for the removal of the trees without injury to other trees. It may be best to purchase some trees at first, which may come into bearing sooner than those from your own nursery. But, for the most part, in the course of your life, depend upon your own nursery. First, because it is more economical; secondly, because it will make you acquainted with the laws of vegetable life and with the habitudes of trees, and thus better able to take care of them in their advanced stages; thirdly, it will serve to interest you in trees, by keeping them before you from their infancy up to maturity; fourthly, it may be a source of revenue.

II. Select the ground for your orchard or fruit garden, carefully. It is not every soil or every exposure, that is adapted to your purpose, though judicious cultivation may do much in removing the disability of a poor soil and unfavorable exposure. What is the best soil and the best exposure your observation of the experiments of others in the vicinity, whether successful or not, can teach you. As a general rule, a deep loam is better than a stiff clay, or a loose sand. Which is the best exposure,—a north or south, an east or west,—will, in different localities, depend on the season, on the proximity of the sea or a marsh, of a mountain or a forest. As a general rule, when you have your choice, you *had better try both sides of a hill*, and one or the other will prove preferable. It has been found, on trial, that peach trees bear best, sometimes on the sunny side and sometimes on the shady side of a building, according to the season; it is safe, therefore, to try both sides, and then you have a double chance for success. The fruit buds, swollen by the sun and then checked by the frost, on the south side, may be safe on the north side; or the fruits destroyed by severe cold on the north side, may be safe on the south side. For your encouragement, however, it should be remembered that the best exposure and the best soil are not essential to success, provided you bestow the appropriate culture.

III. Prepare your ground, carefully. Fruit trees delight in a deep soil, made mellow, in which the roots can move freely in search of pasture. The soil should be prepared as carefully by the plow for a crop of trees, as for a crop of wheat. If it is your purpose to plant an orchard of apple trees, plow your land deep, according to

the nature of the soil. Apply manure generously. Raise a crop of corn or potatoes on green sward. The next season, manure again, if necessary, and sow the ground with oats. Just after your oats are sowed, plant your trees in the soil thus rendered mellow and enriched by manure, in which, the roots can move freely and find nourishment. The oats will protect the trees against the great heat of the sun, and the roots dying will afford them nourishment. The soil formed of turf is appropriate to the nourishment of the roots of the trees.

IV. Plant your trees carefully. In taking them up, see to it, that the spade does its office by digging a circular trench around each tree, near the end of the roots, which radiate from the trunk or stem. Dig under the ends of the roots towards the trunk or body, without wounding them. Raise each, successively, commencing at the extremity, and the whole gently without tearing them. Keep the roots moist until they are transferred to their new habitation. Dig the hole so large that the roots will not be cramped. If there is any difference between the surface soil and that at the bottom of the hole, let the two be kept separate. Lay the surface soil next to the roots and the soil taken from the bottom, on the surface. Some cultivators apply a stratum of well-rotted manure between the two kinds of soil; but not in contact with the roots. Apply water to the roots after the surface soil is placed on them. The time for doing this in our country and climate is generally best in the spring, just after the buds have begun to swell, rather than in the autumn, though some kinds of trees succeed well when planted in the latter season, if proper care be taken in transplanting them.

V. Tend your trees carefully. For the first few years it is advantageous to keep the ground in cultivation, at least occasionally. Trim judiciously, not severely, unless the grape is an exception to the rule. The small branches can be taken off at any time of the year. The large branches seem more readily to harden and to be kept from decay until grown over, when trimmed in the winter. A strong soap suds or a very weak solution of potash applied to the body of certain trees, like the apple and pear, is recommended for giving them a smooth bark. Keep cattle away, but let in pigs and poultry, when it can conveniently be done, as it may sometimes. Our limits will not allow us to point out the various modes of defending them from their insect enemies. We will venture to suggest a repetition of a series of experiments, tried by one of our number, ten or fifteen years since, which appeared to be eminently efficacious in destroying insect life. Sulphur intimately mingled with quick-

lime or with saleratus, appeared to be efficacious in destroying the worm in the root of peach trees and the grubs and worms in garden beds. Would not these mixtures, thrown in powder upon trees, be a preservative against insects like the curculio, and the caterpillar, and canker-worm? The experiment is worth trying. If this should not succeed, are there not certain mineral poisons which might be proved by experiment to be efficacious in protecting vegetable life from insects? As the enemies to fruit increase, let your vigilance increase.

The motives for the cultivation of fruit may be found in its relation to beauty, health, comfort and profit. Fruit trees in leaf, in flower, and in fruit, are eminently beautiful. Some of them are shapely and graceful in their forms. Certain pear trees and cherry trees are almost as regular and symmetrical as the evergreens. Besides being ornamental, they, like other trees, protect the house from the intense heat of summer and the intense cold of winter, by their shade or by breaking the force of the winds. Fruit is wholesome. Bonaparte, on a certain occasion, cured his army of the dysentery by sending them into the vineyards to eat ripe grapes. Moreover, the cultivation of fruit can be made profitable, even when conducted on a great scale. Witness the peach orchards of New Jersey and the apple orchards of New York. Fruit trees make home attractive, and long-remembered. It makes it like Eden, of which it is said that out of the ground made the Lord God to grow every tree that is pleasant to the sight and good for food. Imitate your creator, on your own grounds, and some of the happiness of Eden shall be yours.

RECLAIMING OLD ORCHARDS.

STATEMENT OF DAVID RICE.

An individual may often own, or come into possession of a farm, on which stands an old orchard, that has ceased, from excessive age, neglect, and improper management, to produce fruit, except in sparing quantities, and of the poorest quality,—unfit for eating, and hardly worth gathering. There may be no young orchard on the place, or it may not be old enough to produce fruit. The owner desires to be supplied with fruit, while his young orchard is maturing, and must either purchase fruit, or recruit the old orchard. The principle of economy is consulted, and he finds that it will be economical to reclaim the old orchard. And if the trees are not too aged, if they

have not lost too much of their vitality, and if they formerly bore good, fair, palatable fruit, the chances for success are altogether in his favor. The trouble and expense of reclaiming an old orchard is small; and if the owner succeeds, he is repaid more than ten times over for his labor and expenses. In addition to this, the general appearance (and appearances go a great ways,) of his estate is improved and beautified.

About eight years ago, I came into possession of the place on which I now live. On it was standing an old orchard, that had almost ceased to bear, and was, as it then existed, almost worthless. A part of the trees were beyond any hope of cure, "*in articulo mortis*," as the doctors say, and fit only for firewood. The remainder I considered to be in an improvable condition. There was also on the premises a number of young grafted trees, not yet in a bearing condition. Under the then existing state of things, I was obliged to purchase nearly all my fruit, or go without any. The thought occurred, that I might do something to improve the productiveness of my old trees, both in quality and quantity, so as to be supplied with fruit, while my young trees were maturing, and getting old enough to bear well. Accordingly, in the fall of 1845, I set myself about the task. I selected twenty-five or thirty of the most promising trees, had them well and faithfully trimmed of all dead, dying, unpromising and useless limbs; being particular to leave the most thriving and vigorous ones, that grew from the centre of the tree. With a hoe, I scraped off the old loose bark, and moss from the trunk and limbs, and removed the grassy turf from around the body of the trees, for a distance of two or three feet. I then applied from one-half to a bushel (according to the size of the tree) of unleached wood ashes around the trunk, from whence I had removed the turf, being careful not to have the ashes approach within four or five inches of the bark. Over the ashes I replaced the turf, with the grassy side down. The following spring I noticed that the trees put forth new shoots in abundance, and large, luxuriant leaves of a dark green color, and were well filled with blossoms. I gathered, the succeeding autumn, from them and from a few young trees, just beginning to bear, nearly two hundred bushels of apples. Fifty bushels of these were fit for the fruitery or for winter use, and the others were as good as second rate apples commonly are. I have since continued to apply the ashes and my trees are yet in an excellent bearing condition for an old orchard. My young trees are now beginning to bear a few apples. Last fall I gathered two hundred and fifty bushels in all Two-thirds of these were from my old trees, and chiefly from those treated as above described. About seventy-five bushels of these were excellent winter apples.

I would not recommend plowing among apple trees, especially old trees, at any time, nor under any circumstances. They need all their roots to sustain life and vigor. The plow always breaks and bruises more or less of the roots, if run ever so shallow. Some endeavor to avoid this, by leaving a space untouched under and around the tree,

for a distance fifteen or twenty feet in diameter. But the evil is not avoided in this way. The smaller roots, which are the most important, are certain to be broken, and the tree will sustain an irreparable injury. The addition of some ferruginous substance to the ashes, if the soil is not well supplied with iron, would do well. A quantity of cinders from the blacksmith's shop, such as fly from the hot iron when beaten, (oxyde of iron) has been suggested by Prof. Nash. The soil in which my orchard stands is well supplied with iron, and for that reason I applied none. The application of compost manure, to be spread under the trees, as far as their roots extend, is also necessary on sandy, gravelly soils, that do not contain much organic matter or loam. A compost of equal parts of chip, barn and hog-yard manures, will make one of the best applications of the kind. I would also recommend the grafting of those trees, that send up new and vigorous limbs, and which do not already bear good varieties of fruit. I have grafted several and they are in a flourishing condition, although the scions are not yet old enough to produce much.

David Rice.

Leverett, September 27, 1853.

PEACH ORCHARD.

STATEMENT OF J. E. & A. C. MARSHALL.

Our peach orchard consists of eighty-five trees, and contains thirty varieties. Nearly all of the trees bore fruit the present season. A part of the land is a rich gravelly soil, and the remainder, loamy. It was plowed and planted, two years in succession; then sowed with oats, and seeded, previous to 1847, when we commenced setting our trees. We have continued to add new varieties. When we set our trees, we put three or four shovelsful of well rotted compost manure into each hole, and mixed well with the soil. We have not since used manure around the trees or upon the land; but we hoe, the first season, and keep the ground clean and free from grass, for a space of two and a half feet in diameter. We have put some lime and ashes mixed together, around the trees, once or twice. We have lost no trees by the borers, nor have we been troubled with them at all. Our hens and chickens have had free access, which we think may have been a preventive. We have cultivated five hundred nursery trees between the standard trees, on a part of the land. The remainder has been mowed, and two crops of hay taken off, annually. We estimate the entire cost of setting and taking care of the trees at twenty-five dollars. We have raised fruit enough in past years to pay nearly that amount. The fruit raised the present season was not all measured, but we estimated it at sixty bushels, worth one dollar per bushel.

J. E. & A. C. Marshall.

Amherst, Oct. 26, 1853.

REPORT

ON GRAINS AND VEGETABLES.

BY T. G. HUNTINGTON.

The whole number of entries was seventy-six. The number of entries of grain and grass seeds was eighteen. Of these, eleven were of seed corn, three of wheat, two of grass seed, and one each of broom-corn and rye. Joseph Adams & Sons, of Hadley, entered two varieties of wheat and two of seed corn, of superior quality. Lyman Sabin, of Belchertown, exhibited some fine clover seed; George Dickinson, of Hadley, very good herdsgrass seed; John W. Nash, of Hadley, excellent rye; J. R. Robinson, of Sunderland, two varieties of corn; and Wm. Boltwood, of Amherst, buckwheat.

Of vegetables there was a very full exhibition; and, generally, of a superior quality. The whole number of entries was fifty-eight. Of these, Mr. David S. Cowles, of Hadley, made six entries, containing seventeen varieties, all fine specimens of their kinds. President Hitchcock, of Amherst, exhibited six varieties, among which were specimens of English peas and beans, the seed of which came originally from Amboyne, one of the Spice Islands, and which appear worthy of cultivation in this country. Prof. Haven, of Amherst, entered three fine varieties of squashes and a good specimen of potatoes; Wm. Boltwood, of Amherst, displayed nineteen varieties of beans; Wm. W. Dickinson, of Amherst, four specimens of vegetables; Ransom Cowles, of Amherst, best half a dozen carrots; Oliver Williams, of Sunderland, excellent turnips; George Baker, of Amherst, fine specimens of Norfolk turnips; Edward Hart, of Amherst, squashes; Wright D. Kellogg, of Amherst, a box of beets; and Mrs. Emerson, of Amherst, a fine basket of beets.

The introduction of new varieties of peas and beans from other countries, by President Hitchcock, is highly creditable to him. We learn that Prof. Fowler brought with him from Europe some varieties of grass seeds, which may prove of great value. The lapse of a few years will give opportunity to settle the question by actual trial. The importance of the best varieties and of the most careful attention to selection of seeds for our fields and gardens, cannot be over estimated.

REPORT ON BEES AND HONEY.

BY DAVID S. COWLES.

The exhibition of honey, this year, indicates that more interest is felt in this subject than formerly. The productions of the honey bee are beginning to be appreciated, both as a source of pleasure and of profit. To make bees profitable, the keeper must study their habits and consult their tastes. The times have changed since a swarm of bees found a home in the carcass of a lion. In our day, neatness and order are essential to the prosperity of bees. The hives should be well ventilated. For the purposes of ventilation, ease of management, and convenient removal of honey at the pleasure of the keeper, the hive patented by Phelps, of Ohio, and exhibited at the Fair, this year, is one of the best ever invented. The best book on bees is that of Mr. Langstroth, of Greenfield, whose apiary is worthy of admiration and examination.

REPORT ON SWINE.

BY SAMUEL NASH.

It may be proper to say, at the commencement, that an exhibition of wit and humor is not proposed in this report. Such exhibitions have been so frequently made, that there appears to be somewhat of a general expectation, at the anniversaries of our agricultural societies, that the *committee on swine* should enliven the occasion with a humorous report. The object aimed at is amusement, rather than usefulness;—an object not easily attained, and the attempt, perhaps, on account of the peculiar talent required, quite as often results in failure, as success. We have no inclination to attempt such difficult ground, but prefer, rather, making a few remarks naturally suggested by the exhibition. The only attempt at wit we propose, is not to make an attempt to be witty.

The show as a whole has been a very good one. The several varieties of swine, for which a premium was offered by the Society, have

been well represented, as have also the different breeds most esteemed in this region. Some specimens, however, appeared to be of such a mixture of breeds, that it would puzzle a farmer, and probably any body else, to trace their genealogy, or to call them any thing but hogs.

The best and cheapest mode of producing the best pork, is a subject of very general interest. Probably, more families within the limits of our Society participate in the production of pork, than of any other variety of meat. And the same remark is doubtless true, in regard to most country towns in New England, and throughout the United States. Every step of progress, therefore, in the selection and improvement of breeds, in determining the most suitable food, the best and most economical mode of its preparation, and the best general treatment of swine, is an advantage shared directly by large numbers. And it becomes us, in this part of the United States, especially, to look well to this matter, that it may be profitable for us to produce pork for market. *The quality and mode of producing it must be superior*, or our western brethren will supply our markets, and even our next-door neighbors The farmer who lives a thousand miles from Boston, and produces his corn (doubtless the best food for fattening swine) on the cheap and fertile soil of the West, at a cost varying from sixpence to fifty cents a bushel, can now, in many cases, by the aid of railroads, transport his pork to that city for about the same sum, that it used to cost our fathers twenty or thirty years ago, to take it to the same market.

It is quite certain that these causes are producing the effects, that might naturally be expected. By the sixth United States census, taken in 1840, it appears that the number of swine raised in Massachusetts was 143,221. In our State census of 1845, the number returned was 104,740; being a reduction of 38,481 in five years. In the last United States census, taken in 1850, the number is 81,119, which shows a reduction of *nearly one-half*, in the brief period of ten years. And during this same period of ten years, the population of our state *increased* from 737,699 in 1840, to 994,271 in 1850.

Notwithstanding the odds against us, pork has been, and will probably continue to be produced among us at a profit. But it can be done only by good management, and by the production of a superior article. The circumstances surrounding the Massachusetts farmer—whose corn is worth a dollar a bushel, and who expects to rear and fatten his pork in a pen of moderate size, with a small yard connected, and to feed them with the refuse of the dairy and kitchen, and

with a variety of other food, raw and cooked—are quite different from those of his western brother, who rears his pigs on the prairies or oak-openings, and fattens by turning them into his corn-fields. What would be wisdom in one case, might be folly in the other. The *breed* of swine, for instance, that would be profitable for one, might be poorly adapted to the purposes of the other. This may be illustrated by reference to the last agricultural report of the United States Commissioner of Patents. Before preparing the report, the Commissioner had sent a circular to various parts of the United States, in which he proposed this question, among others, "*what are the best breeds of hogs?*"

New Hampshire answers, "the Suffolk;" Connecticut, "a mixture of 'old fashioned hogs' with Berkshire and the China breed, generally does very well;" New York, by three of her citizens, separately, "Berkshires and Leicesters;" New Jersey, "a cross with the Berkshires;" Pennsylvania, "a cross of the Berkshires and Chester county;" Virginia, "Irish grazier and mixed Berkshires are our common stock;" Georgia, "the best breeds for the climate are the Woburn and Grazier;" Mississippi, "the best hogs I have tried are the Berkshires;" Texas, "Irish Grazier;" Tennessee, "the common old Grazier mixed with Hindoo breed;" Kentucky, "Woburn;" Ohio, "Leicester, Bedford, Chinese and Calcutta;" Michigan, "the Berkshires are too small, and are nearly extinct. We have the Byfield and Leicester;" Indiana, "Berkshires, Russia and China;" Missouri, "Berkshires, or a cross between the black Berkshire and white Irish;" Iowa, "China and Byfield. Berkshires are not much esteemed of late;" Florida, "for the range, or shift-for-yourself system, the long-nosed Pike stands A No. 1. For a system of partial feeding, the Corbet, grass, and a cross with the China hog are preferred."

It is doubtless true that, in some cases, a knowledge of the different breeds would have led to different answers. But it is quite as true and evident, that no one breed is best adapted to all locations and circumstances.

The same report may also be cited to show the different results obtained by various individuals, as to the weight of pork produced by a given quantity of food. A question proposed in the circular was, "*how many pounds of meat will one hundred pounds of corn yield?*" Comparatively few of the responses definitely answer this particular question. But those given *vary from eight to forty pounds.* Now if there be, in fact, so wide a difference as these answers indicate, it appears to us that it must be, in a great measure,

owing to the causes before suggested; such as adaptation of the breed to the circumstances of the farmer, and the modes of rearing and fattening. The Commissioner, in a note appended to the 301st page of the report, expresses his own opinion, that "one hundred pounds of corn-meal ought to produce twenty-five pounds of pork," and he adds, that "three and a half pounds of meal gave Mr. Ellsworth, former Commissioner of Patents, a pound of pork." This last would be twenty-eight and four-sevenths pounds of pork to one hundred pounds of meal. If the farmers of Hampshire county can attain to Commissioner Ellsworth's success, we need not fear, that pork cannot be produced at a profit, in the Connecticut valley.

REPORT ON FLOUR AND BREAD.

BY ZEBINA C. MONTAGUE.

MANY specimens of both wheat and rye Flour were submitted to the committee. Standing among the bags which were labelled *wheat flour*, was a large pail of flour on which there was no card with the number and kind, it probably having fallen off in the confusion attending the examination. Several cards belonging to flour, bread, and even butter and cheese, were lying near it on the table, and the committees were often at a loss to determine *which* belonged to *which*. This specimen, not being fully understood, was in a measure overlooked in the examination. Subsequently, however, we discovered it to be a specimen of superior rye Flour (No. 3), presented by Alfred Baker, President of the Society; though, owing to the confused state of the numbers and labels, its kind was not discovered until after the committee had concluded their examination and agreed on the awards. It should be some compensation to him for its failing to be noticed in its true place among the specimens of *rye*, that from its position on the table it was supposed to be *wheat*, and the committee were some moments in doubt whether the *second* premium on *wheat* flour should be awarded to the sample in the pail (Mr. Baker's *rye*), or to the specimen of wheat which eventually did receive that premium. This statement is due to Mr. Baker's excellent specimen of *rye*, which came so near receiving the *second* pre-

mium on *wheat*. We speak of it also to protest against such careless attaching of the numbers and labels to the specimens, and the mingling together of the different kinds of articles, by those in charge of the halls, as necessarily leading to much confusion and numberless errors in the examining committees. We hope the evil complained of will be carefully corrected, hereafter, for the benefit of all future committees, whose business is in the halls. A small box of *wheat flour* (No. 32) was submitted by Messrs. J. Adams & Sons, of Hadley; unaccompanied by any statement, and the quantity was too small to allow it to come into competition for a premium, under the rules which limited the committee;—this is to be regretted, as the small quantity exhibited was deemed by the committee, fully equal, if not superior in quality, to either of the specimens which did receive the premiums; it having that peculiar *compact* fineness and faint *rosy tint*, which *used* to distinguish the best "Rochester Flour," in the early days of "flour barrels." We would take this opportunity to inquire of the Messrs. A., in regard to the growth and manufacture of that specimen, and whether they have any quantity of the same lot?

Of Bread, there was a large number of loaves submitted, comprising all the various kinds, and one specimen of *biscuit*. The committee deem it no "faint praise" to say, that not a loaf of the whole display but *looked* "good enough to eat." But not content to rely on *sight* alone, in so important a matter, we procured a knife, and, though unsuccessful in effecting a *coalition* with the committees on butter and cheese (probably conscientiously opposed to "coalitionism"), every loaf was subjected to extensive *multisection*, and we thoroughly examined them, both by the *taste* and the other *tests* which the experienced ladies of our board knew so well how to apply. Though we failed in obtaining, as stated above, from neighboring committees a fair exchange of commodities to make it "go down more smoothly," we were unanimous in the awards which have been heretofore announced. A lady-member of the committee, prevented by her position on the committee from her usual offering of *bread* for competition, has, at the special request of the chairman, submitted some *Bread-rhymes*, which may be called *Rye-and-Indian*. We offer them below, though, unfortunately for future aspirants, no statement accompanied the production, and we are utterly unable to state the exact kind or proportion of the ingredients,—how long it was permitted to "rise,"—how long to "bake," etc.; and—sad to say—the quantity was too small to allow it, under the rules, to come

into competition for a premium; we are assured, however, that it was entirely *domestic-made*, and that no *machine* of any kind was employed in its manufacture;—"raised" with *salt* only, with a trifle of *spice* added:

[*Written by special request of the Chairman.*]

Your committee on Bread applied every test
To aid in deciding which was good, better, best;
We taxed all our senses—*taste* we much requir'd,
That we might judge *right*;—a point the most desired.

Many nice loaves we found, by maid or matron sent;
Our premiums were few—we gave to the extent;
And one gratuity, for the best that we could see
By any *Miss* who sent a loaf (*Mrs.* she should be).

'Twas the opinion of the worthy dames of yore,
When girls could make *pudding*, they might marry—not before;
Good *bread* be our standard of fitness for a wife;
Girls who this art despise should lead a single life!

REPORT ON BUTTER.

BY L. WETHERELL.

The display of butter at the last Hampshire Agricultural Fair was the finest ever seen in the Connecticut valley. There were thirty-eight entries, making an aggregate of four hundred and ten pounds. The committee were fully convinced, immediately after commencing their labor, of the difficult duty they had to perform, viz., to select eight parcels, deemed the best, for which the Society had offered as many different premiums, the highest being four dollars and the lowest, fifty cents. The committee spent nearly half-a-day in tasting, and re-tasting, comparing and re-comparing, in order to do justice, according to their best judgment, to all the competitors who had complied with the rules of the Society. Where all was so nice, it was no easy matter to do justice to all, with the limited number of premiums to be awarded.

Instead of publishing the statements furnished by the competitors and exhibitors, the chairman of the committee decided that it would

be more acceptable to butter-makers and members of the Society generally, to have some facts and suggestions presented—such as experience and observation have developed and recorded.

First, then, as to cows. The different breeders and dealers in stock are far from being agreed as to which variety of all, is the best. Some prefer the Durham cow—others, the Yorkshire—the Devon—the Ayrshire—the Staffordshire—the Kerry of Ireland, and the Alderney. The latter is universally admitted to produce the richest milk in quality. The Alderneys or improved Gurnseys, have been known to give twenty-six quarts of milk apiece, per day—the cream of which has produced fourteen pounds of butter per week.

A full-bred Durham has been known to produce twenty-eight quarts a day, and eighteen pounds and six ounces of butter per week. A test was made at Liverpool, a few years since, of the qualities of milk, with the following results:

Yorkshire and common cows,	. .	8	per cent of cream.
Ayrshire, ...		15	" "
Alderney, ...		23½	" "

There are some who prefer the native cow, because more easily kept. Much depends, however, upon the treatment of the animal. If the keeping be poor, the less one has to do with fancy stock, the better. If it be good, then will native stock soon become fancy, or highly improved stock. Much might be said on this subject, but the want of space forbids further remark.

Secondly. With regard to keeping, or the effect which pasturage has upon the quality of butter. It is a common remark, that certain localities produce better butter than others. Much less, however, it is thought, depends upon pasturage, than upon the dairy-maid. In every district, says Dr. Anderson, an English agricultural writer, where good butter is made, it is universally attributed to the richness of the pastures, though it is a well known fact, that take a skilful dairy-maid from that district into another, where no good butter is made, and where, of course, the pastures are deemed very unfavorable, she will make good butter, as good as she used to do; and bring one from the last district into the other, and she will find that she cannot make better butter there, than she did before, unless she takes lessons from the servants, or others whom she finds there.—I have frequently, says he, known instances of this kind.

M. Tessier, of the French National Institute, remarks, that the particular quality of Bretagne butter, whose color, flavor, and consistence, are so much prized, depends neither on the pasture nor the

particular variety of cow, but on the mode of making. This butter is of a superior quality, because they make it of the richest cream, and in large quantities at a time. As soon as it is made and washed, they sprinkle it with sweet milk, spread it out in flatted cakes, larger or smaller, but rarely containing less than six pounds, and lay it on a kind of pan placed on hot cinders, and covered with a copper lid, on which are put cinders, also. It remains there some minutes, more or less, according to the bulk of the cakes. This mode requires skill and practice, in order to succeed.

Thirdly. With regard to the care and treatment of cows. They should be kept clean—washed, if need be, and curried. The following statement is copied from one in Ireland, who stated that he had an actual profit of £331 6s. on keeping a single cow, *in house*, eight years—during which she yielded 38,855 quarts of milk. In the summer he fed his cow on clover, rye-grass, lucerne, and carrots four times a day, feeding at noon about four gallons of grains and two of bran, mixed—giving her no more than she would eat up cleanly. The feed in the winter was the same;—feeding five or six times a day;—supplied her with food while milking;—keeping the manger clean—never tied her—being particularly careful to milk her cleanly—milch cows being often spoiled for want of patience in the milker. This neglect frequently causes suppuration and blindness in the teats—the want of milk. The result of one year, the cow then being eleven years old, is here detailed: She calved on the third of April, and on the fifth of June the calves—twins—being nine weeks old, were sold for £12 12s. From the sixth of June to the third of July, four weeks, she gave twenty-four quarts daily, equal to six hundred and seventy-two quarts, yielding seventeen pounds of butter per week, or sixty-eight pounds per month. From the fourth of July to the eighteenth of September, eleven weeks, she gave twenty-two quarts daily, equal to sixteen hundred and ninety-four quarts, yielding sixteen pounds of butter per week, or one hundred and seventy-six pounds for the whole time. From the nineteenth of September to the thirteenth of November, eight weeks, she gave eighteen quarts, daily, equal to one thousand and eight quarts, yielding fourteen pounds of butter per week, equal to one hundred and twelve pounds, &c. Total, for forty-eight weeks, averaging about fourteen quarts per day, equalling five thousand three hundred and sixty quarts, yielding five hundred and ninety-four pounds of butter. This, at twenty cents a pound, would equal one hundred eighteen dollars,

eighty cents. The rent of a cow, per year, in Ireland and Scotland, varies from seven to twelve pounds sterling.

Lastly. The dairy-room. This should be of equable temperature, say about forty-five degrees—with a northern exposure—well ventilated—no inside communication with any other building—free from smoke—and *perfectly* clean. So of every utensil used. Cast-iron pans, tinned on the inside, are the best coolers; these, and the pails, &c., should all be exposed daily to the sun. Milk but twice a day, and be sure that you strip perfectly clean. Allow no harsh, rough, cross-grained milker to approach your cows any sooner than you would a slut or snuff-taker, to enter the dairy-room. With regard to churning, the cream should be of the temperature of about fifty-three degrees. This is declared to be the very best temperature for churning, if you would make butter of the finest quality. If you desire to obtain the greatest quantity, churn at fifty-six degrees. When the churning is done, place the butter in pure cold spring water, with some salt in it, preparatory to freeing it from every particle of milk. Butter should be salted at the rate of about one pound of the finest and purest salt that can be obtained, to every fourteen pounds of butter.

The process of obtaining the cream, to an extent hitherto unattainable, has been effected by Mr. Carter, an Englishman, who details his experiment, in a paper presented to the Society of Arts, as follows:

"A peculiar process of extracting cream from milk, by which a superior richness is produced in the cream, has long been known and practiced in Devonshire; this produce of the dairies of that county being well known to every one by the name of 'clotted' or 'clouted cream.' As there is no peculiarity in the milk from which this fluid is extracted, it has been frequently a matter of surprise that the process has not been adopted in other places of the kingdom. A four-sided vessel is formed of zinc-plates, 12 inches long, 8 inches wide, and 6 inches deep, with a false bottom at one-half of the depth. The only communication with the lower compartment is by the lip, through which it may be filled or emptied. Having first placed at the bottom of the upper compartment a plate of perforated zinc, the area of which is equal to that of the false bottom, a gallon (or any given quantity) of milk is poured (immediately when drawn from the cow) into it, and must remain there at rest for twelve hours; an equal quantity of boiling water must then be poured into the lower compartment through the lip; it is then permitted to stand twelve hours more (i. e. twenty-four hours altogether), when the cream will be found perfect, and of such consistence that the whole may be lifted off with the finger and thumb. It is, however, more effectually removed by gently raising the plate of perforated zinc from the bottom by the ringed handles, by which means the whole of the

cream is lifted off in a sheet, without remixing any part with the milk below. With this apparatus I have instituted a series of experiments, and as a mean of twelve successive ones, I obtained the following results:—4 gallons of milk, treated as above, produced, in 24 hours, 4 1-2 pints of clotted cream, which, after churning only fifteen minutes, gave 40 ounces of butter; 4 gallons of milk treated in the common mode in earthenware pans, and standing 48 hours, produced 4 pints of cream, which, after churning 19 minutes, gave 36 ounces of butter. The increase in the quantity of cream, therefore, is 12 1-2 per cent, and of butter upwards of 11 per cent. The experimental farmer will instantly perceive the advantages accruing from its adoption, and probably his attention to the subject may produce greater results. I shall feel richly rewarded if, by exciting an interest on the subject, I can produce any, the slightest improvement, in the quality or mode of producing an article which may properly be deemed one of the necessaries of life."

REPORT ON CHEESE.

BY GEORGE E. FISHER.

That your Committee might be the better qualified to discharge the duty assigned them, they were led to a brief examination of the article of cheese.

I. *Etymologically.* They found the occurrence of the word "cheese," in at least eleven different languages. They found, moreover, that the primary signification of the term is to curdle or congeal, from collecting, drawing, or driving. Cheese, therefore, is the more thick or coagulable part of milk, called curd, separated from the more thin or watery part, called whey, by a process of which the sequel will speak, and pressed into a hoop or mould.

II. We looked into the subject, *historically.* And we found that cheese is "nothing new under the sun;" that it has a history, and a history, too, that carries us back to the days when the world was young. David, the son of Jesse, carried ten cheeses to the captain of his brethren, when he, a mere stripling, went out, single-handed, to fight the great Philistine, and lay his pride in the dust. More than three thousand years ago, Job said, "Hast thou not poured me out like milk, and curdled me like cheese?"—indicating, thus, his knowledge of the article as then existing. Frequent mention is also made of it in old Latin authors. In coming to their work, your Committee

felt, therefore, that they had to do with that which is venerable indeed, having descended to us from generations far away and buried, and through the lapse of centuries long gone, and they tried to feel something of the reverence that became them in the presence of the survivor of so many buried generations and centuries.

III. We made inquiry into the *chemistry* of cheese. In answer to our inquiries, our most worthy friend, "The Progressive Farmer," gave us all needed information, as he has done on most other matters connected with "practical agriculture." We learned from him that about four per cent. of milk is sugar; that if the milk be kept for some time in a warm place, its coagulable part acts upon the sugar, and changes some portion of it into what is termed *lactic acid*, and that the soda, which is one of the substances contained in milk, and whose office it is to hold the curd in solution, is acted upon by the acid above mentioned, so that its alkaline power is neutralized, whereupon the curd immediately appears in the form of curdled milk, which, when pressed, forms a kind of cheese. As this process of cheese-making would, however, be slow and inconvenient; and, withal, would not secure cheese of a good quality, it is common to make use of some other acid than that generated in the milk, in order to neutralize the soda, and destroy its power. For this purpose, an animal acid is used, called *rennet*. This is taken from the stomach of the sucking calf, where its office is the same as that to which the cheese-maker puts it, viz., to curdle the milk taken from the cow. The milk thus curdled is more digestible. For any further information, we refer to our friend, the "Farmer," of whom, we trust, all other farmers and farmers' wives will be constant and diligent learners.

IV. We proceeded to our work, *experimentally*. While engaged in this part of our examination, we could but recal the old proverb, so often quoted, "de gustibus non disputandum est," which is, being interpreted, "there is no accounting for the tastes."

REPORT ON MECHANIC ARTS,

INCLUDING AGRICULTURAL IMPLEMENTS.

BY DAVID RICE, M. D.

INVENTIVE genius is progressive. It never ceases in its constant and untiring efforts. Its motto is "Excelsior," and its aim, perfection. Onward and upward, ever has been, and ever will be, its triumphant march. No obstacle, however difficult, seems to impede its course,—no eminence is too high for it to surmount. Like a mighty river, wide and deep, that flows fearlessly over rocks and through mountain defiles, to the sea; the genius of invention moves on with irresistible power. At the present day, the creations of mechanical genius rise up around us in so many multiplied and surprising forms, that we are astonished and awed. While we survey with delight and admiration, one of her recent combinations, another, and still another appears, more wonderful and pleasing still. Our wives, whose mothers and grandmothers were obliged to card, spin, weave and knit nearly every wearing fabric in use, are relieved of such drudgery, by the invention of the power-loom. Machinery accomplishes the work, in a hundredth part of the time, and, I was about to say, with a hundredth part of the expense. Our wives and daughters can now devote their time to other employments, quite as useful as spinning or weaving, and far less laborious and irksome. The old-fashioned hand-cards, spinning-wheel, and loom, are curiosities, at the present day. I well remember the monotonous hum of the spinning-wheel, and the delight I took in seeing my good old mother warp and weave; but little thought how tedious and severe was the labor. Thanks to the "Mechanic Arts," for the safe package of the whole paraphernalia in some dark corner of the garret!

All trades have received a new impulse, and are carried on with comparative ease and despatch. We may cite the splitting and shaving of shingles; the manufacture of wheel-spokes and felloes; the shaving and shaping of axe, hoe, and broom handles; of barrel heads and staves,—all which processes were formerly done by hand; but are now performed by ingenious and much-admired machines, contrived by American genius. Among the improved tools, we may name the axe, saw, chisel, plane and all kinds of carpenter's tools,

which are less clumsy, of better material, and of higher finish. While examining, not long ago, some beautiful bench tools, manufactured by our own mechanics, we could not but revert to the "pod augur days" of yore,—the contrast was so striking, between the olden and modern implements. A pod augur! Did you ever see one? And could you ever solve the problem satisfactorily to your own mind, how any mechanic, though a Hercules in strength, could penetrate twelve inches into seasoned oak timber with a square-ended gouge yclept a pod augur? As for us, the hardest problem of Euclid were an easy task to it.

In the olden time, travelling was done principally on horseback. It was not uncommon for a gentleman and lady to ride upon the same animal, at the same time; the gentleman upon the saddle, and the lady, behind, upon a pillion. Wagons were next contrived, but of very rude character, as many of us well remember; consisting of four wheels,—two very large, and two in front very small, with wooden axletrees, and a canoe-shaped body perched directly upon the axletrees. Add to this a high-backed wooden seat, upon a pair of wooden springs, and you have the pleasure and business carriage, common among us, *forty years ago*. A little later, came the chaise and the thorough-braced wagon, hung upon straps of leather; and at length, within a few years, the elegant four-wheeled, steel-springed carriages, of varied form, so convenient, beautiful, and easy, let the highways be ever so rough or smooth. There are those living, who have journied both in the ancient, and modern vehicle; and whose rheumatic joints, if they could speak, would bless the modern carriage makers.

But, we must not omit the improved implements of husbandry. In no art has there been a more marked advance. New tools have been invented, and old ones improved, until farming has become comparatively an easy task. Look at the plow of to-day; and, then, at the uncouth, wooden, iron-sided thing, bearing that name, of thirty years ago. What was it? A heavy wooden beam, with a wooden mould-board, plated with straps of wrought iron, to which was fastened a wrought-iron nose of clumsy construction. It was a heavy, cloggy thing to manage, both for man and beast, and did its work badly. Compare this implement with the cast-iron plow of the present day and comment is unnecessary. Hoes, too, have received the finishing touch of the mechanic. Those presented by Messrs. Graves & Hatch, of North Leverett, were the most beautiful and perfect articles of the kind, we ever saw. Formerly, a hoe was a flat, thick,

square piece of iron, with a ferrule welded upon one side, into which was fastened a handle; an unwieldy, tiresome tool, heavily taxing the muscles of the laborer. Now, a hoe is just what it should be; a well formed, polished steel plate, rightly proportioned and tempered, lithe, light, and flexible; with a well formed socket for the handle, and, when finished, it is an ornament. About the same difference may be observed between other agricultural implements of old and modern times. The pitch-fork and manure-fork, formerly, were huge misshapen things, of very clumsy construction, and resembling the fork of "Old Nick," or the trident of Neptune in the picture books. Now, a fork, whether for pitching hay or manure, is as light and pliable as a willow stem, yet strong and not easily broken. Formerly, all kinds of grain were cut with the sickle and cradle. Now, the reaping-machine does the work, in a twentieth part of the time. It was threshed out with the flail, with a great deal of hard, dirty labor, and winnowed with a hand fan, an implement resembling a coal-box with one of its sides knocked out. Now, the threshing-machine and winnowing-mill prepare the grain with much ease and nicety for the granary, with much less cost and labor. By means of better scythes, and the horse-rake, at least one-half the expense of making hay is saved. The cultivator and seed-planter save a vast amount of labor formerly done with the hoe.

The whole number of specimens of mechanical skill, including implements of husbandry, on exhibition, was twenty-seven. To each, your committee awarded a gratuity in money or a copy of the U. S. Patent Office Mechanical Report. We have space to notice only a few of the articles.

Mr. Porter Dickinson, of Amherst, exhibited a *corn-sheller* of original design, patented by himself. We think it the best ever presented to the farmers of Massachusetts. Years ago, corn was shelled by hand. With a basket of ears before him, an ear of corn in one hand and a cob in the other, the farmer sat by his kitchen fire and shelled corn the long winter evening, making a fire with the cobs. Now, with a good corn-sheller, twenty bushels can be shelled as fast as one by hand. Mr. Charles H. Bangs, of Amherst, entered a new style of cheese-press, which we think very superior. Mr. Levi Adams, of Hadley, displayed an ingenious churn, with a double action of centrifugal and centripetal forces, which we think will do its work with despatch. Mr. Daniel Ballard, of Wendell, entered an apple-corer, which should be introduced into every family. Graves & Hatch, of Leverett, a lot of elegant hoes; Mr. David S. Cowles, of

Hadley, a fine bee-hive, filled with honey and bees; E. & J. Cushman, of Amherst, board paper, manufactured by them from broom-corn stalks; Mr. Charles Field, of Leverett, a superior child's spring-cab. Mr. Leonard Streeter, of Boston, exhibited Otis' patent insulated lightning-conductor. This rod is so constructed, as to be perfectly continuous; the joints being secured with great firmness. The glass insulators are fitted into wood sockets, so that they may be easily and securely fastened. It has, also, numerous points, at short intervals, for dissipating into the atmosphere any excess of electricity which might not be disposed of at either end of the rod. We should think it to be constructed on very scientific principles.

The American farmer has great reason to be proud of the inventive genius of his countrymen. Ours is comparatively a new country, and WANT, which is always a prominent feature in a new country, sets genius to work. American ingenuity has not only equalled in its developments the mother country, but outstripped her, for our wants, and consequently our efforts, have been greater. The peculiarity of American genius is its highly inventive character. Nor is it exactly like that of any other country. It picks their locks; it invents and fashions a vessel, that outsails on their own waters, before their own eyes, all their boats, brigs, schooners and yachts, and leaves them tugging behind, like a school of tired porpoises. They look amazed, and are ready to burst with vexation, to see Jonathan behave so. We have shown to the world the most ingenious machine, ever made in any country, for cutting grain. We could cut over some of the small kingdoms of Europe with that machine, about as soon as any of the inhabitants could reap half a dozen acres with a sickle. We make the best plows and scythes; India-rubber goods, and the sweetest toned musical instruments. We invent the queerest machinery for saving manual labor, and contrive to have the best wives and the prettiest daughters, found in any country.

REPORT ON FINE ARTS.

BY JOSEPH HAVEN.

Not the least attractive part of the exhibition this year, was the display of those nicer specimens of workmanship, whether of the needle or the pencil, which fall under the general department of the Fine Arts, and in which the ingenuity and skill, no less than the industry and practice of the fair artists, are conspicuously displayed. It is a pleasant thing, among the manifold productions of the farm, the dairy, &c., to find some place for the handiwork of the gentler ones, who neither sow nor reap nor gather into barns, but who in their way are as industrious within doors, as we of the rougher sort are without, and who are at once the ornament and the delight of every true home. Among the choicest treasures of the Agricultural Association at its recent fair, were those delicate specimens of needle work, drawing, painting, &c., the productions of the wives and daughters of Hampshire, vieing with each other to adorn the halls filled with the humbler products of the farmer and the loom. May the more productive industry of the farmer and the loom, never be dissociated from a taste for the fine arts, and the love of the beautiful.

The collection of specimens in this department was quite large, and of very superior quality. The whole number of entries on the books was something over one hundred, and of the entire number, it would have been much more difficult to find those *not* deserving of a premium, than to select those that richly merited one. It will be impossible, in this brief notice, to make mention of any considerable part of the rich collection—only a few articles can be specified.

The most conspicuous object, as the observer entered the hall and glanced at its contents, was the large collection of oil paintings, twenty-six in number, which adorned the walls—the work of Mr. E. S. Field, of Sunderland. Most of these have been on exhibition before, and we need not therefore particularly describe them, Many of them are large and costly paintings, and they certainly do credit to the ingenuity and industry of the artist. With better opportunities for artistic education and study, we doubt not Mr. Field would show himself a superior workman.

Among the great number of paintings that covered the walls, we noticed with peculiar pleasure some flowers in water colors, by Mrs.

A. G. Sears, very delicately and beautifully executed—as fine specimens of the kind, as we remember ever to have seen. A chromatic painting by the same hand, was also very well done. Several oil paintings, by Mrs. Hitchcock, of Amherst, were well worthy a place in this or any similar exhibition. We noticed, also, from the same source, a picture frame, and a box in the new style of carving and ornamental leaf work, which were very beautiful. A Papier-Maché Portfolio, by Mrs. Sears, was not inferior to many of the most costly foreign productions of the kind.

Of embroidered lace work, finer specimens, we venture to say, have seldom been on exhibition, than some that very quietly and modestly adorned our tables. Crotchet collars, wrought handkerchiefs, knit tidies, slippers, children's frocks, valencia lace collars, &c. &c., quite beyond our present powers of enumeration and description. A large number of those we noticed, were from the ladies of Hadley.

Some very fine articles of fancy needle work were presented by Miss Snell, of Amherst,—a glove case handsomely embroidered, a worsted bag, and a pair of slippers, to which no gentleman of taste or sensibility could possibly object.

Two magnificent bouquets of wax flowers, one by Mrs. Winslow, of Sunderland, the other by Miss Tourtelotte, of Amherst, attracted much attention.

Very elegant fancy chairs, or chair seats, by Miss Fowler and Miss Warner, also of Amherst, richly deserved much higher prizes than they took.

A case of millinery, by D. J. Bartlett, and another by Miss C. Chaffee, of Amherst, contained very nice and beautiful specimens of fancy work.

Among the ottomans, we noticed two of very rich apppearance, entered by Mrs. A. P. Howe, of Amherst.

Perhaps the most elegant pieces of fancy work on exhibition, however, were some superb lamp mats, in raised flower work, one by Mrs. A. L. Gates, another by Miss O. H. Cowles, both of Belchertown, and a third by Mrs. C. D. Perkins, of North Hadley. We have never seen anything of the kind superior.

We have enumerated scarce a tithe of the objects of interest in this department, on exhibition at the recent festival. The collection, as a whole, would compare favorably with any similar exhibition which we have at any time seen elsewhere; and our only regret is, that it was not in our power, as a committee, to bestow rewards, more worthy of the work and the fair hands that wrought it.

List of Premiums

AWARDED BY THE

HAMPSHIRE AGRICULTURAL SOCIETY,

1853.

AGRICULTURAL ESSAY.

L. Wetherell, Amherst, $10

FARMS.

Moses Stebbins, Deerfield, $20
Austin Smith & Sons, Sunderland, 15
Samuel Powers, Hadley, 10

RECLAIMED MEADOW LAND.

Albert Montague, Sunderland, $8
Edmund Smith, Hadley, 6

PLOWING WITH OXEN.

Levi D. Cowles, Amherst, $6
Linus Green, Hadley, 5
E. Porter Dickinson, Sunderland, 4
Erastus Nash, Granby, 3

PLOWING WITH HORSES.

William Strong, Northampton, 5
Elisha Strong, Northampton, 4
Josiah Fogg, Deerfield, 3
George W. Hobart, Amherst, 2

MANURES.

Ansel A. Rankin, Pelham, $8
Kelita Hubbard, Sunderland, 5
Albert Montague, Sunderland, 3

GRAIN CROPS.

CORN.

N. & B. Smith, Sunderland, $5
R. T. Wheelock, Amherst, 4
George Dickinson, Hadley, 3

WHEAT.

Washington Miller, Sunderland, $4
N. & B. Smith, Sunderland, 3

RYE.

George Dickinson, Hadley, $5
N. & B. Smith, Sunderland, 4

BROOM-CORN.

George Dickinson, Hadley, $3

HERDSGRASS SEED.

George Dickinson, Hadley, $3

ROOT CROPS.

CARROTS.

O. & F. H. Williams, Sunderland, $3

TURNIPS.

O. & F. H. Williams, Sunderland, $2

FRUIT TREES.

APPLE ORCHARDS.

Kelita Hubbard, Sunderland, $8
Avery D. Hubbard, Sunderland, 4

PEACH ORCHARDS.

J. E. & A. C. Marshall, Amherst, $3
W. E. & S. S. Dickinson, Amherst, 2

NURSERIES.

William Hunt, Sunderland, $3

RECLAIMING OLD ORCHARD.

David Rice, Leverett, $2

APPLES.

David Blodgett, Enfield, $2
Rufus Scott, Hadley, 1.75
Austin Eastman, Amherst, 1.50
Horace Hunt, New Salem, 1.25
Christopher Paige, Prescott, 1 00
Ransom Dickinson, Sunderland, .75
Edmund Smith, South Hadley, .50
Ashur Shepard, Northampton, 2.00
Theodore Rust, Northampton, 1.00
J. R. Trumbull, Northampton, .50
Daniel Ballard, Wendell, .50
Theodore Pasco, Hadley, 1.00

PEARS AND PEACHES.

Ansel C. Marshall, Amherst, $1.00

QUINCES.

N. Austin Smith, Sunderland, .75
N. & B. Smith, Sunderland, .50

GRAPES.

Ransom Dickinson, Sunderland, .75
Mrs. Fay, Amherst, .50
John Dickinson, Amherst, .50

CRANBERRIES.

Edward A. Stanley, Amherst, .25
David S. Cowles, Hadley, .25

MAPLE SUGAR.

Peter Spaulding, Jr., Sunderland, $1.00

VEGETABLES AND GRAINS.

David S. Cowles, Hadley, $2.00
Edward Hitchcock, Amherst, 1 50
Joseph Haven, Amherst, 1.00
William Boltwood, Amherst, .75
Ransom Cowles, Amherst, .25
Oliver Williams, Sunderland, .25
George Baker, Amherst, .25
Edward Hartt, Amherst, .25
Wright D. Kellogg, Amherst, .25
Mrs. Emerson, Amherst, .25
Joseph Adams & Sons, Hadley, 1.50
Austin Smith, Sunderland, 1.00
Wm. W. Dickinson, Amherst, .50
Lyman Sabin, Belchertown, .50
George Dickinson, Hadley, .25
John W. Nash, Hadley, .25
J. R. Robinson, Sunderland, .25
Ransom Dickinson, Sunderland, .25

FARM STOCK.

BULLS.

Proctor Powers, New Salem, $3
Christopher Paige, Prescott, 2
John McMaster, Granby, 1

WORKING OXEN.

Hadley Team, 38 pairs, $20
North Amherst, 42 pairs (gratuity), 20
R. Wales Smith, Hadley, 5
Arctas J. Cadwell, Amherst, 4
Zaccheus C. Ingram, Amherst, 3
Edmund Smith, South Hadley, 2
Chester Cowles, Amherst, U.S. Ag. Rp
Nelson Smith, Granby, U.S. Ag. Rep't.

THREE YEARS' OLD STEERS.

Chester Gray, Hadley, $4
Edmund Smith, South Hadley, 3
Daniel Dickinson, Amherst, 2

TWO YEARS' OLD STEERS.

Edmund Smith, South Hadley, $3
Emory H. Needham, Amherst, 2
Jonathan Cowles, Jr., Amherst, 1
C. Hamilton, Shutesbury, U.S. Ag. Rp.
Monroe Eaton, Pelham, U.S. Ag. Rep't.

YEARLING STEERS.

Cephas May, Conway, $2
Asahel Gates, Amherst, 1

FAT CATTLE.

Josiah Fogg, Deerfield, $5
Moses Stebbins, Deerfield, 4
Chester Smith, Hadley, 3
Moses Stebbins, Deerfield, gr., 5

MILCH COWS.

T. G. Huntington, Hadley, $5
Wm. W. Dickinson, Amherst, gr., 3
Hubbard Graves, Sunderland, gr, 3
John A. Morton, Hadley, gr., 1

HEIFERS.

Lucius Boltwood, Amherst, $3
Horace Hunt, New Salem, 2
Spencer Church, Amherst, 2
Guy C. Munsell, Amherst, 2

CALVES.

Cephas Porter, Leverett, $3
T. P. Huntington, Hadley, U.S. Ag. Rp.
B. Arnold, Belchertown, 2
Christopher Paige, Prescott, 2

STALLIONS.

Orestes Richards, Cummington, $5
Milo A. Taylor, Granby, 4

DRAFT HORSES.

Henry S Porter, Hatfield, $4
A. R. & E. Owen, Belchertown, 3

FARM HORSES.

Henry M. Potter, Enfield, $3
Abner Gilbert, Leverett, 2
Leavitt Hallock, Amherst, 1

MARES AND COLTS.

Guy C. Munsell, Amherst, $4
Ransom Cowles, Amherst, 3
Benjamin P. Aikin, Prescott, 2
Nelson Smith, Granby, U.S. Ag. Rep't.
W. Miller, Sunderland, U.S. Ag. Rep't.

THREE YEARS' OLD COLTS.

Samuel French, Williamsburgh, $3
Julius F. Clark, Easthampton, 2
D. S. Cowles, Hadley, U.S. Ag. Report.

TWO YEARS' OLD COLTS.

Guy C. Munsell, Amherst, $2
Nelson Smith, Granby, 1

YEARLING COLTS.

Baxter Eastman, Amherst, $1
N. S. Weeks, Hadley, Report and 1

BOARS.

Edmund Hobart, Amherst, $3
Hubbard Graves, Sunderland, 2

SOWS AND PIGS.

John Lyman, Amherst, $3
N. & B. Smith, Sunderland, 2
Hubbard Graves, Sunderland, U. S. Agricultural Report.

LITTERS OF PIGS.

John Lyman, Amherst, $2
C. B. Hubbard, Sunderland, 1

BUCKS.

Augustus Clark, Granby, $3

EWES.

Augustus Clark, Granby, $3
Lemuel H. Newell, Pelham, 2
Leavitt Hallock, Amherst, 1

POULTRY.

E. Porter Dickinson, Sunderland, $2
Lemuel H. Newell, Pelham, 1
F. Bonney, Hadley, 2
Harvey White, Hadley, 1
S. & N. Adams, Shutesbury, U. S. Agricultural Report,
Luther M. Clark, Granby, U.S. Ag. Rp.

WHEAT FLOUR.

Avery D. Hubbard, Sunderland, $1.00
George Dickinson, Hadley, .50

RYE FLOUR.

Albert Montague, Sunderland, $1.00

George Dickinson, Hadley, .50

WHEAT BREAD.

Mrs. Levi Adams, Hadley, $1.50
Mrs. Tempe Linnell, Amherst, 1.00
Mrs. F. C. Willis, Amherst, .50

RYE BREAD.

Mrs. N. D. Adams, Shutesbury, $1.50
Mrs. Levi D. Cowles, Amherst, 1.00
Mrs. Joseph Adams, Hadley, .50

RYE AND INDIAN BREAD.

Mrs. Orus Ball, Leverett, $1.00
Mrs. C. B. Hubbard, Sunderland, .50

BUTTER.

Mrs. R. Wales Smith, Hadley, $4.00
Mrs. N. A. Smith, Sunderland, 3.50
Mrs. Edmund Hobart, Amherst, 3.00
Mrs. Simeon Clark, Amherst, 2.50
Mrs. B. W. Allen, Amherst, 2.00
Mrs. Horace Kellogg, Amherst, 1.50
Mrs. S. P. Puffer, Amherst, 1.00
Mrs. Levi D. Cowles, Amherst, .50

CHEESE.

Mrs. B. U. Dickinson, Amherst, $1.50
Mrs. Oren Williams, Amherst, 1.25
Mrs. S. S. Dickinson, Amherst, 1.00
Mrs. Horace Kellogg, Amherst, .75

HONEY.

Ebenezer Gaylord, Amherst, $1.00
S. D. Crocker, Sunderland, .75

FINE ARTS.

E. S. Field, Sunderland, $2.50
Mrs. E. M. Judkins, Hadley, 1.00
Mrs. A. G. Sears, Amherst, 1.00
Miss C. Chaffee, Amherst, 1.00
D. J. Bartlett, Amherst, 1.00
Miss E. Fowler, Amherst, .75
Miss M. Warner, Amherst, .75
Miss M. Snell, Amherst, .75
Mrs. T. G. Huntington, Hadley, .75
Miss Mary Snell, Amherst, .50
Mrs. Winslow, Sunderland, .50
Miss E. H. Tourtelotte, Amherst, .50
Miss S. D. Palmer, Amherst, .50
E. G. Shumway, Amherst, .50
Mrs. E. Hitchcock, Amherst, .50
Mrs. A. L. Gates, Belchertown, .50
Miss. O. H. Cowles, Belchertown, .50
Miss F. S. Owen, Belchertown, .50
Mrs. A. P. Howe, Amherst, .50
Stoddard & Lathrop, Northampton, .37
Mrs. Bonney, Hadley, .37
Miss Amie Nash, Amherst, .37
Miss Scott, Hadley, .37
J. D. Marsh, Amherst, .37
Miss Sarah Snell, Amherst, .25
Miss Fanny Hallock, Amherst, .25
Mrs. N. A. Smith, Sunderland, .25
Miss Emily Davis, Amherst, .25
Miss A. R. Bently, Amherst, .25
Aaron Warner, Jr,, Amherst, .25
Abram Wright, Sunderland, .25
Miss Julia Field, Sunderland, .25
Miss T. G. Smith, Sunderland, .25
Mrs. C. D. Dickinson, Hadley, .25
Mrs. Hartly, Amherst, .25

MANUFACTURES.

Mrs. A. Montague, Sunderland, $3.00
Mrs. Z. M. Lyman, Hadley, 2.00
Mrs. Moses Field, Leverett, 2.00
Mrs. S. M. Hubbard, Sunderland, 2.00
Mrs. Elizabeth Haven, Amherst, 2.00
Miss L. Robinson, Amherst, 2.00
Mrs. Wm. Kellogg, Amherst, 2.00
Mrs. C. Paine, Sunderland, 2.00
Field & Hubbard, Leverett, 1.50
Mrs. A. Montague, Sunderland, 1.50
Mrs. Edmund Smith, S. Hadley, 1.00
Mrs. H. E Alden, Belchertown, 1.00
Mrs. Horace Kellogg, Amherst, 1.00
Mrs. S. D. Crocker, Sunderland, 1.00
Mrs. Alden C. Field, Leverett, 1.00
Mrs. S. A. Thayer, Amherst, 1.00
Mrs. Sanderson, Sunderland, 1.00
Alonzo Paine, Sunderland, 1.00
Mrs. Samuel Dunlap, Sunderland, 1.00
Miss T. E. Munsell, Sunderland, .75
Mrs. Enos Dickinson, 2d, Amherst, .50
Mrs. Luther Chapin, Amherst, .50
Mrs. B. Hemmenway, Sunderland, .50
Mrs. N. A. Smith, Sunderland, .50

MECHANIC ARTS.

Leonard Streeter, Boston, $2.00
Porter Dickinson, Amherst, 2.00
Allen & Meekins, Northampton, 1.50
L. G. Rice, Montague, 1.00
Field & Strickland, Amherst, U. S. Agricultural Report and 1.00
Abram Wright, Sunderland, 1.00
Levi Adams, Hadley, 1.00
D. S. Cowles, Hadley, Report and .50
John Q. Brailey, Pelham, .50
A. D. Hubbard, Sunderland, .50
Worthing & Wheelock, Amherst, .50
E.S.& F.A.Pierce,Amherst, Rp. and .50
C. H. Field, Leverett, Report and .50
C. Carver, Shutesbury, .50
H. A. Keith, Amherst, .50
L. C. Ingram, Amherst, .50
Daniel Ballard, Wendell, .50
C.H. Bangs, Amherst, U.S Mech. Rep't.
Bridgman & Wetherbee, Nhampton, do.
Graves & Hatch, Leverett, do.
Henry C. Kellogg, Amherst, do.
Joseph Adams & Sons, Hadley, do.
E. & J. Cushman, Amherst, do.

Life Members

OF THE

HAMPSHIRE AGRICULTURAL SOCIETY.

AMHERST.

Adams, Charles
Adams, Charles Mrs.
Adams, John S.
Adams, John S. Mrs.
Ainsworth, Forrester
Allen, Benjamin W.
*Allen, Hiram H.
Allen, Hiram H. Mrs.
Allen, Martha L.
Allen, Nathaniel
*Ames, Edwin
Ayres, Elijah
Ayres, Elijah Mrs.
Ayres, Josiah
Baker, Alfred
Baker, Alfred Mrs.
Baker, Enos
Baker, George
Baker, George Mrs.
Baker, Joel
Bangs, Charles H.
Bangs, Danforth K.
Bangs, Danforth K. Mrs.
Barnard, Alvan
Barnard, Alvan Mrs.
Bartlett, David
Bartlett, David Mrs.
Belden, Aaron
Belden, Horace
Belden, Timothy C.
*Blodgett, Henry
Bogue, Elisha
Bogue, Elisha Mrs.
Boltwood, Lucius
Boltwood, William
Boltwood, William Mrs.
Boyden, James W.
Boyden, James W. Mrs.
Bridgman, Guilford
Bridgman, Henry A.
*Bridgman, Jonathan
Bridgman, Mary S.
Briggs, Ebenezer
Briggs, Ebenezer Mrs.
Burnham, George Jr.
Burnham, George Jr. Mrs.
Cadwell, Aretas J.
Cadwell, Aretas J. Mrs.
Carter, Samuel C.
Carter, Samuel C. Mrs.
Chandler, Aaron M
Church, Elihu S.
Church, Elihu S. Mrs.
Church, Spencer
Clark, Simeon
Clark, Simeon Mrs.
Clark, W. S. Prof.
Clark, W. S. Mrs.
Cobb, Henry
Conkey, Ithamar
Conkey, Ithamar F.
Conkey, Ithamar F. Mrs.
Converse, Daniel
Converse, Daniel Mrs.
Cooke, David S.
Cooke, David S. Mrs.
Cook, Enos F.
Cooley, Alden
Cooley, Moses D.
Cowles, Chester
Cowles, Chester Mrs.
Cowles, Clinton J.
Cowles, Clinton J. Mrs.
Cowles, Enoch

Cowles, Enoch Mrs.
Cowles, Erastus
Cowles, Erastus Mrs.
Cowles, James
Cowles, James Mrs.
Cowles, Jonathan
Cowles, Jonathan Mrs.
Cowles, Jonathan Jr.
Cowles, Jonathan Jr. Mrs.
Cowles, Julia B.
Cowles, Levi D.
Cowles, Levi D. Mrs.
Cowles, Moses
Cowles, Moses Mrs.
*Cowles, Oliver
Cowles, Ransom
Cowles, Ransom Mrs.
Cowles, Submit Mrs.
Cummins, E. A. Rev.
Cummins, E. A. Mrs.
Curtis, Oliver H.
Curtis, Oliver H. Mrs.
Cushman, John R.
Cushman, John R. Mrs.
Cutler, Esther
Cutler, Elisha P.
Cutler, George
Cutler, George Mrs.
Cutler, Robert
Cutler, Robert Mrs.
Cutler, Samuel F.
Cutler, William
Cutler, William Mrs.
Dana, Joseph
Darling, Benjamin R.
Dexter, David
Dexter, David Mrs.
Dickinson, Asa & Noble
Dickinson, Bela U.
Dickinson, Bela U. Mrs.
Dickinson, Charlotte Miss
Dickinson, Daniel
Dickinson, Daniel Mrs.
Dickinson, Daniel A.
Dickinson, Emily E. Miss
Dickinson, Edward
Dickinson, Edward Mrs.
Dickinson, Enos,
Dickinson, Enos Mrs.
Dickinson, Enos 2d
Dickinson, Enos 2d Mrs.
Dickinson, John
Dickinson, John Mrs.
Dickinson, Joseph
Dickinson, Josiah
Dickinson, Lavinia A. Miss
Dickinson, Lydia E. Miss
Dickinson, Lovina Miss
Dickinson, Lucius
Dickinson, Marquis F.
Dickinson, Marquis F. Mrs.
Dickinson, Moses B.
Dickinson, Moses B. Mrs.
Dickinson, Oliver
Dickinson, Oliver Mrs.
Dickinson, Sarah M. Miss
Dickinson, Samuel S.
Dickinson, Samuel S. Mrs.
Dickinson, Waitstill
Dickinson, Waitstill Mrs.
Dickinson, William
Dickinson, William 2d
Dickinson, William Austin
Dickinson, William E.
Dickinson, William W.
Draper, Lewis L.
Dutton, Alonzo
Dutton, Alonzo Mrs.
Eastman, Austin
Eastman, Austin Mrs.
Eastman, Baxter
Eastman, Baxter Mrs.
Eastman, Solomon K.
*Eastman, Solomon K. Mrs.
Edwards, Simeon
Ferry, Sarah P. Miss
Field, D'Estaing Mrs.
Fish, Cummins
Fish, Seth
Fish, Seth Mrs.
Fisher, George E. Rev.
Fitch, Newton
Fitch, Newton Mrs.
Fowler, Emily
Fowler, William C.
French, Mary F.
Frink, Henry
Frink, Henry Mrs.
Fuller, Walter
Gaylord, Flavel

Gaylord, Ebenezer
Gaylord, Ebenezer Mrs.
Gaylord, Eleazer
Gaylord, William
Gaylord, William Mrs.
Godfrey, William B.
Goodell, Noble T.
Goodell, Rufus
Goodell, Rufus Mrs.
Gray, Joseph P.
Gray, Joseph P. Mrs.
*Green, Eunice
*Gridley, Timothy J. Dr.
Grout, Austin
Gunn, Lyman
Gunn, William F.
Hallock, Leavitt
Hallock, Leavitt Mrs
Hammond, Salem
Hammond, Salem Mrs.
Harlow, Nathaniel L.
Hastings, Edmund
Hastings, Edmund Mrs.
Hastings, Joseph C.
Hastings, Joseph C. Mrs.
Hastings, Thomas
Hastings, Thomas Mrs.
Haven, Joseph Prof.
Haven, Joseph Mrs.
Hawley, Charles M.
Hawley, Harrison
Hawley, Justin
Hayward, Charles F.
Hayward, Charles F. Mrs.
Henderson, Timothy
Hills, Leonard M.
Hills, Leonard M. Mrs.
Hills, Liberty
Hills, Liberty Mrs.
Hills, Samuel
Hills, Samuel T.
Hitchcock, Edward
Hitchcock, Edward Mrs.
Hobart, Edmund
Hobart, Edmund Mrs.
Hobart, George W.
Hobart, George W. Mrs.
Hobart, Jeremiah W.
Hobart, Joshua
Hobart, Stillman
Hobart, Stillman Mrs.
Howard, H. C. & M. W.
Howard, M. W. Mrs.
Howe, Albin P.
Howe, Albin P. Mrs.
Howland, Warren S.
Howland, Warren S. Mrs.
Hubbard, Ethan D.
Hubbard, Ethan D. Mrs.
Hubbard, Orton
Ingram, Ezra
Ingram, Harrison
Ingram, Harrison Mrs.
Ingram, Rufus
Ingram, Zaccheus C.
Ingram, Zaccheus C. Mrs.
Jackson, Henry.
Jewett, George B. Prof.
Johnson, Earl
Johnson, Earl Mrs.
Johnson, Orren
*Jones, Thomas
Jones, Thomas Mrs.
Kellogg, H. C.
Kellogg, Eleazer
Kellogg, Horace
Kellogg, Horace Jr.
Kellogg, James
Kellogg, Lyman
Kellogg, Lyman Mrs.
Kellogg, Wells Sanford
Kellogg, Willard M.
Kellogg, Willard M. Mrs.
Kellogg, William
Kellogg, William Mrs.
Kellogg, William Jr.
Kingman, Cyrus
Leland, John
Leland, John Mrs.
Loomis, Austin
Loomis, Milton
Lyman, John
Mack, David
Mack, David Mrs.
Marshall, Ansel C.
Marshall, Joseph E.
Mather, William E.
Mather, William E. Mrs.
McMaster, Charles
McMaster, Charles Mrs.

Merrick, James E.
Merrick, James E. Mrs.
Merrick, James L. Rev.
Merrick, James L. Mrs.
*Merrick, William
Merrill, Calvin
Merrill, Calvin Mrs.
Merrill, Harriet O. Miss
Moore, Phœbe Mrs.
Munsell, Guy C.
Nash, Charles
Nash, Charles Mrs.
Nash, J. A. Rev.
Nash, J. A. Mrs.
Nash, Luther
Needham, Emory H.
Needham, Emory H. Mrs.
Nelson, Julia C.
Newton, Walter
Palmer, Frederick A.
Palmer, Frederick A. Mrs.
Pierce, E. S. & F. A.
Pierce, Francis A. Mrs.
Pomeroy, David
*Pomeroy, David Mrs.
Potwine, Thomas
Prince, Samuel
Putnam, Rufus
Putnam, Rufus Mrs.
Rankin, John
Reed, Thomas
Reed Thomas Mrs.
Rice, Alpheus
Roberts, Fanny H.
Robins, Alva
Robins, Z. W.
Robins, Z. W. Mrs.
Robinson, Ferdinand Mrs.
Robinson & Ainsworth
Russell, Chauncy R.
Russell, Emerson
Russell, Emerson Mrs.
Russell, Francis H.
Sanford, John Rev.
Sanford, John Mrs.
Segraves, Horatio
Shepherd, Charles U.
Slate, Jonathan S.
Smith, B. F. Dr.
Smith, B. F. Mrs.
Smith, Charles
Smith, Charles Mrs.
Smith, Cotton
Smith, Newman W. Dr.
Smith, Newman W. Mrs.
Smith, Timothy
Smith, Timothy Mrs.
Smith, William B.
Smith, William W.
Snell, E. S. Prof.
Snell, E. S: Mrs.
Spaulding, Philip D.
Spear, Ebenezer P.
Spear, Lyscom
Spear, Lyscom Mrs.
Spear, Myrick N.
Stanley, Edward A.
Stratton, Chester
Stratton, Chester Mrs.
Strickland, William G.
Strickland, William G. Mrs.
Sweetser, Hannah
Sweetser, Luke
Sweetser, Luke Mrs.
Tapley, George W.
Taylor, Israel H. Dr.
Taylor, Israel H. Mrs.
Taylor, Stillman
Thayer, Jason
Thayer, Jason Mrs.
Thayer, Jonathan
Thayer, Jonathan Mrs.
Thayer, Reuben
Thayer, Savannah A.
Thayer, Savannah A. Mrs.
Turner, Rodolphus
Tyler, William S. Prof.
Tyler, William S. Mrs.
Warner, Aaron Prof.
Warner, Aaron Mrs.
Warner, David S.
Warner, George
Watson, Oliver
Watson, Oliver Mrs.
Wetherell, Leander
Wheelock, Dana
Wheelock, Russell T.
*Whipple, David
Whipple, George A.
Whitney, Simon W.

Williams, Ebenezer
Williams, Enos D.
Williams, Frederick
Williams, Orin
Williams, Orin Mrs.
Winter, Jonas H.
Woodman, George S. Dr.
Woodman, George S. Mrs.
Woodworth, C. L. Rev.
*Woodworth, C. L. Mrs.
Wright, Sylvanus M.
Wright, Sylvanus M. Mrs.

BALSTON, N. Y.

Crapo, Azubah Mrs.

BALTIMORE, MD.

Brown, Smith

BELCHERTOWN.

Alden, Thomas
Arnold, Barnard
Barrett, Leonard
Chandler, George
Dorman, Roderic
Dunbar, Charles T.
Dwight, Nathaniel Jr.
Gilbert, Wareham C.
Goodell, Asahel
*Hannum, Gamaliel
Hannum, Lyman W.
Holland, Luther
*Lawrence, Myron
*Longley, Joshua
Montague, Ephraim
Sabin, Lyman
Sisson, John
Thayer, Hezekiah
Thayer, Rufus
Thayer, William
*Towne, Israel
Wilson, Asa

CHESTER.

Brewster, John M. Dr.

CHICOPEE.

Mossman, Abner G.

CONWAY.

May, Cephas

COVINGTON, KY.

Payson, Joseph R.

DEERFIELD.

Fogg, Josiah
Stebbins, Evander G.
Stebbins, Moses
Stebbins, Moses Mrs.

EASTHAMPTON.

Colton, A. M. Rev.
Colton, A. M. Mrs.

ENFIELD.

Fobes, Henry
Smith, Alvan
Woods, Josiah B.

GRANBY.

Ayres, Rodney
Ayres, Samuel
Barton, James M.
Barton, Phineas D.
Chapin, Philo
Clark, Augustus
Clark, Luke M.
Dickinson, Samuel D.
Ferry, Charles S.
Ferry, Lucius
Patrick, William J.
Preston, John H. D.
Smith, Jared C.
Smith, Nelson
Smith, William A.
Stebbins, Cyrus
Taylor, Milo A.
Warner, Alonzo
Warner, Park
Witt, Benjamin
Witt, Horace
Woodward. William H.

GREENFIELD.

Smith, Samuel D.

GREENWICH.

Douglass, Stephen
Earl, Luke

HADLEY.

Adams, Benjamin
Adams, Benjamin Mrs.
Adams, Joseph
Adams, Levi
Adams, Levi Mrs.
Baker, Esek
Carter, Benjamin T.
Comins, Simon F.
*Cowles, Asa
Cowles, Daniel
Cowles, Daniel Mrs.
Cowles, David S.
Cowles, David S. Mrs.
Cowles, Elijah
Cowles, Elijah Mrs.
Cowles, Lewis
*Cowles, Lewis Mrs.
Dickinson, Dexter C.
Dickinson, Elihu S.
Dickinson, George
Dickinson, Samuel Jr.
Dickinson, William P.
Dickinson, William P. Mrs.
Granger, Lorenzo N.
Granger, Lorenzo N. Mrs.
Gray, Amos
Gray, Chester
Green, Dorus
Green, Dorus Mrs.
Green, Henry
Green, Linus
Green, Linus Mrs.
Hayward, E. E.
Hibbard, Albert
Hibbard, E.
Hill, Roderic B.
Hooker, Benjamin
Huntington, Theodore G.
Huntington, Theophilus P.
Huntington, Theophilus P. Mrs.
Kellogg, Martin
Kellogg, Martin Mrs.
Kellogg, Stillman
Kellogg, Stillman Mrs.
Lamson, Charles E.
Marsh, Timothy S.
Morton, John A.
Morton, John A. Mrs.
Nash, John W.
Nash, Samuel
Nash, Samuel Mrs.
Osborn, John
Pasco, Theodore
Pasco, Theodore Mrs.
Porter, Eleazer
Porter, Edwards J.
*Porter, Edwards J. Mrs.
Powers, Alfred
Powers, Alfred Mrs.
Powers, Samuel
Powers, Samuel Mrs.
Russell, Horace
Russell, Horace Mrs.
Russell, John
Russell, John Mrs.
Russell, Levi
Russell, Levi Mrs.
Sabin, Sherman
Sabin, Sherman Mrs.
Scott, Rufus
Scott, Rufus Mrs.
Shipman, John
Shipman, John Jr.
Smith, Chester
Smith, Cotton
Smith, Cotton Mrs.
Smith, Edmund
Smith, Erastus
Smith, Giles E.
Smith, Horace
Smith, Jeriah S.
Smith, Joseph
Smith, Joseph Mrs.
Smith, R. Wales
Smith, R. Wales Mrs.
Smith, Thaddeus
Smith, Thaddeus Mrs.
Stockbridge, Levi
Tower, Samuel
Wallis, Addi
West, Parsons
West, Parsons Mrs.
White, Samuel S.
Williams, P. Smith

HATFIELD.

Hubbard, George W.

HOLYOKE.

Cooke, Edwin F.

KEENE, N. H.

Sprague, Joseph G.

KNOXVILLE, Tenn.

Cooke, George Rev.
Cooke, George Mrs.

LEVERETT.

Adams, Alden
Ashley, Marvin
Ashley, Marvin Mrs.
Ball, Orus
Ball, Orus Mrs.
Ball, Silas
Bangs, Howard
Boutwell, Levi
Boutwell, Harriet D. Mrs.
Cutler, Senecca Mrs.
Eastman, David Rev.
Eastman, David Mrs.
Field, Alden C.
Field, Alden C. Mrs.
Field, Asa L.
Field, Asa L. Mrs.
Field, Charles H.
Field, Charles H. Mrs.
Field, Harrison
Field, Harrison O.
Field, Harrison O. Mrs.
Field, Moses
Field, Moses Mrs.
Field, Zebina
Fitts, Elijah B.
Fitts, Nathan H.
Frary, Francis
Graves, Kellogg
Graves, Levi M.
Hobart, Baxter R.
Hobart, Charles D.
Hobart, Peter
Hobart, Spencer
Hubbard, Roswell
Ingram, Elijah M.
Matthews, Horace
Nutting, Lucius
Nutting, Ransom
Porter, Cephas
Putnam, Timothy
Putnam, Timothy Mrs.
Rice, David Dr.
Smith, William H.
Whitaker, Augustus G.
Wood, Seth
Woodbury, Jason H.

MARLBOROUGH, N. H.

Downs, Almeron S.

MONTAGUE.

Paine, Orrin Mrs.
Russell, Calvin
Russell, Calvin Mrs.

MOUNT MORRIS, N. Y.

Sears, Simon

NEW SALEM.

Hunt, Horace

NEW YORK, N. Y.

Colton, Joseph
Harrington, Samuel
Harrington, Samuel Mrs.
Smith, Henry B. Prof.

NORTHAMPTON.

Arnold, W. A.
Baker, Osmyn
Clapp, D. M.
Clark, William Jr.
Clark, William
Dickinson, George P.
Hawks, Charles K.
Hinckley, Samuel L.
Hillyer, Winthrop
Kirkland, Harvey
Parsons, Samuel L.
Shepard, Ashur
Shepard, Henry
Smith, S. M.
Strong, Elisha
Strong, William
Thayer, Justin
Trumbull, James R.
Trumbull, James R. Mrs.
Washburn, Luther I.
Wells Samuel
West, Joseph I.

Wilson, J. W.
Wright, Ansel

OLEAN, N. Y.

Nutting, Truman
Nutting, Truman Mrs.

OSKOSH, Wisc.

Kellogg, Ansel W.

PELHAM.

Aldrich, Asahel
Aldrich, Nehemiah W.
Ballou, Emory
Ballou, Hiram
Barrows, Isaac
Buffum, Thomas
Carter, John
Cook, Olney
Fales, Abijah
Hall, John B.
Newell, Lemuel H.
Rankin, Ansel A.
Russell, John
Ward, Joseph G.

PRESCOTT.

Aikin, Benjamin P.
Paige, Christopher

PROVIDENCE, R. I.

Leonard, Dexter M.

SHUTESBURY.

Adams, N. Dickinson
Adams, S. Ward
Dudley, Samuel F.
Fitts, Edward
Howe, Abraham S.
Shores, David

SOUTHAMPTON.

Edwards, Elisha

SOUTH HADLEY.

Allen, Levi W.
Alvord, Hervey
Bates, Emerson
Burnett, Nelson W.
Clark, Marcellus
Gaylord, Lorenzo
Kellogg, Amos
Lathrop, Paoli
Lyman, George J.
Lyman, Lorenzo W.
Montague, C. Newton
Moody, Hovey
Nash, Thomas M.
Smith, Edmund
Smith, Edmund Mrs.
Smith, Gilbert A.
Smith, Jason
Snow, Sheldon Mrs.

SPRINGFIELD.

Montague, Isaac W.

SUNDERLAND.

Clark, Sereno D. Rev.
Clark, Sereno D. Mrs.
Cooley, Charles
Crocker, Stoughton D.
Dickinson, Ebenezer P.
Dickinson, Ransom
Dickinson, Ransom Mrs.
Dunlap, Samuel
Gaylord, William
Graves, Alden
Graves, George W.
Graves, Hubbard
Graves, Timothy
Grover, Josiah
Hemmenway, Betsy C. Mrs.
Henderson, Horace
Henderson, Horace Mrs.
Hubbard, Alanson
Hubbard, Alanson Mrs.
Hubbard, Ashley
Hubbard, Ashley Mrs.
Hubbard, Avery D.
Hubbard, Claudius B.
Hubbard, Kelita
Hubbard, Martin L.
Hubbard, Rodolphus B.
Hunt, James
Hunt, William
Ludden, Parmenas
Lyman, Horace
Miller, Washington

Montague, Albert
Montague, Albert Mrs.
Russell, William W.
Russell, William W. Mrs.
Sanderson, Eli
Sanderson, Henry F. Mrs.
Smith, Austin
Smith, Austin Mrs.
Smith, Elihu
Smith, John M.
Smith, N. Austin
Smith, N. Austin Mrs.
Smith, N. & B.
Trow, Nathaniel G. Dr.
Warner, James R.

* Deceased.

Wiley, Dolly F. Miss
Wiley, Ebenezer
Wiley, Ebenezer Mrs.
Wiley, John
Williams, Oliver
Wright, Abram

WESTBOROUGH.

Smith, Charles H.
White, Samuel N.
White, Samuel N. Mrs.

WILLIAMSBURGH.

Bartlett, Newman W.

LIFE MEMBERS.

RECAPITULATION.

Amherst,	385	Leverett,	46
Balston, N. Y.	1	Marlborough, N. H.	1
Baltimore, Md.	1	Montague,	3
Belchertown,	22	Mount Morris, N. Y.	1
Chester,	1	New Salem,	1
Chicopee,	1	New York, N. Y.	4
Conway,	1	Northampton,	22
Covington, Ky.	1	Olean, N. Y.	2
Deerfield,	4	Oskosh, Wisc.	1
Easthampton,	2	Pelham,	14
Enfield,	3	Prescott,	2
Granby,	22	Providence, R. I.	1
Greenfield,	1	Shutesbury,	6
Greenwich,	2	Southampton,	1
Hadley,	93	South Hadley,	18
Hatfield,	1	Springfield,	1
Holyoke,	1	Sunderland,	51
Keene, N. H.	1	Westborough,	3
Knoxville, Tenn.	2	Williamsburgh,	1

Whole number of Life Members, - - - **724**

TRANSACTIONS

OF THE

Hampshire Agricultural Society,

DURING THE YEAR

1854.

PUBLISHED BY THE SOCIETY.

AMHERST, MASS.:
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1854.

Officers of the Society.

1854.

President,

ALFRED BAKER, of Amherst.

Vice Presidents.

JOHN A. MORTON, of Hadley.
MOSES STEBBINS, of Deerfield.
GILBERT A. SMITH, of South Hadley.
ALBERT MONTAGUE, of Sunderland.
WAREHAM C. GILBERT, of Belchertown.
GEORGE W. HUBBARD, of Hatfield.

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SIMEON CLARK, of Amherst.
AVERY D. HUBBARD, of Sunderland.
DAVID RICE, of Leverett.
RODNEY AYRES, of Granby.
AUSTIN EASTMAN, of Amherst.
GEORGE DICKINSON, of Hadley.
ANSEL A. RANKIN, of Pelham.

Delegate to the State Board of Agriculture,

Prof. JOHN A. NASH, of Amherst.

Transactions.

The Executive Committee met in April, at the Secretary's office, and prepared a list of premiums, which amounted to more than six hundred dollars. The Annual Show Bill was posted in more than two hundred public places, within the limits of the Society, and printed in the Amherst Express. The responsible and delicate duty of awarding premiums was assigned to forty Committees, composed of two hundred and twenty-one ladies and gentlemen.

EXAMINING COMMITTEES.

On Farms. J. A. Nash, Amherst, Chairman. Leander Wetherell; Moses Stebbins, South Deerfield.

On Fruit Trees. Leander Wetherell, Amherst, Chairman. Levi Boutwell, Leverett; Alfred Baker, Amherst.

On Crops. Samuel Powers, Hadley, Chairman. N. Austin Smith, Sunderland; Cyrus Stebbins, Granby.

On Manures. John A. Nash, Amherst, Chairman. Ansel A. Rankin, Pelham; Wm. H. Smith, Leverett.

On Subsoil Plowing. R. T. Wheelock, Amherst, Chairman. Kelita Hubbard, Sunderland; Lorenzo W. Lyman, South Hadley.

On Reclaimed Swamp Land. Hon. Joseph Smith, Hadley, Chairman. Edmund Hobart, Amherst; Spencer Clark, Granby.

On Strings of Cattle. Capt. Elijah Ingram, Leverett, Chairman. Augustus Eastman, Granby; I. B. Barrows, Pelham; A. C. Marshall, Amherst; W. C. Gilbert, Belchertown; L. P. Warner, Sunderland; Theodore Pasco, Hadley.

On Bulls. T. P. Huntington, Hadley, Chairman. Samuel Prince, Amherst; Harrison Field, Leverett; John McMaster, Granby.

On Steers. Edmund Smith, South Hadley, Chairman. Jonathan Cowles, Jr., Amherst; Olney Cook, Pelham; Chester Gray, Hadley; L. W. Hannum, Belchertown.

On Cattle for the Stall. Zebina Field, Leverett, Chairman.

Chester Smith, Hadley; S. L. Strong, Northampton; E. D. Williams, Amherst.

On Milch Cows. PARSONS WEST, Hadley, Chairman. Baxter Hobart, Leverett; R. R. Eastman, Granby.

On Heifers. G. C. MUNSELL, Amherst, Chairman. John Russell, Pelham; Washington Miller, Sunderland.

On Calves. MARCELLUS CLARK, South Hadley, Chairman. Barnard Arnold, Belchertown; Simon Comings, Hadley; Cephas Porter, Leverett.

On Swine. HENRY C. NASH, Amherst, Chairman. Hubbard Graves, Sunderland; Samuel Tower, Hadley; John Lyman, Amherst.

On Sheep. LEAVITT HALLOCK, Amherst, Chairman. Linus Green, Hadley; G. W. Graves, Sunderland.

On Poultry. DR. TROW, Sunderland, Chairman. L. H. Newell, Pelham; N. D. Adams, Shutesbury; Nathan Fitts, Leverett.

On Working Oxen Five Years Old. J. A. MORTON, Hadley, Chairman. J. M. Barton, Granby; Abijah Fales, Pelham; E. P. Dickinson, Sunderland; Wm. W. Dickinson, Amherst.

On Working Oxen Four Years Old. HORACE KELLOGG, Amherst, Chairman. Asahel Aldrich, Pelham; Nelson Smith, Granby; David Shores, Shutesbury; M. F. Dickinson, Amherst.

On Plowing with Ox-Teams. DAVID RICE, Leverett, Chairman. Thomas Buffum, Pelham; Eleazer Kellogg, Amherst; Alonzo Warner, Granby; Nathaniel Smith, Sunderland; Daniel Cowles, Hadley; E. A. Stanley, Henry Cobb, Amherst.

On Plowing with Horse-Teams. LEONARD BARRETT, Belchertown, Chairman. Josiah Rice, Leverett; Lorenzo Gaylord, South Hadley; L. N. Granger, Hadley; Ezra Ingram, Amherst.

On Plowing with Double Plows. LEVI STOCKBRIDGE, Hadley, Chairman. C. C. Paige, Prescott; Moses Montague, South Hadley; J. B. Hall, Pelham; P. D. Barton, Granby.

On Forest Trees. LEANDER WETHERELL, Amherst, Chairman. Moses Field, Leverett; Wm. Hunt, Sunderland; Joseph Adams, Hadley; Charles Stetson, Amherst.

On Wheat Bread and Flour. Rev. G. E. FISHER, Amherst, Chairman. Mrs. L. D. Cowles, Amherst; Mrs. Seneca Cutter, Leverett; Mrs. F. A. Palmer, Amherst; Mrs. Ransom Dickinson, Sunderland; Mrs. J. B. Hall, Pelham; Miss Harriet Merrill, Amherst.

On Rye Bread and Flour. Rev. DAVID EASTMAN, Leverett, Chairman. Miss S. P. Ferry, Amherst; Mrs. C. B. Hubbard, Sun-

derland; Mrs. David Rice, Leverett; Mrs. S. B. Dickinson, Granby; Mrs. Francis Frary, Leverett.

On Rye and Indian Bread. Rev. Mr. Beaman, Hadley, Chairman. Mrs. Moses Field, Leverett; Mrs. Orrin Paine, Montague; Mrs. B. U. Dickinson, Amherst; Mrs. Thomas Buffum, Pelham; Miss Sophia Dickinson, Amherst.

On Butter. T. G. Huntington, Hadley, Chairman. Mrs. Nehemiah Aldrich, Pelham; Mrs. S. C. Stebbins, Granby; Mrs. Cotton Smith, Amherst; Mrs. Wm. W. Dickinson, do.; Mrs. N. A. Smith, Sunderland; Mrs. Lyman Sabins, Belchertown; Mrs. L. M. Hills, Amherst.

On Cheese. Rev. S. D. Clark, Sunderland, Chairman. Miss Lydia Dickinson, Amherst; Mrs. Daniel Dickinson, do.; Mrs. Chester Ayres, Granby; Mrs. A. C. Field, Leverett; Mrs. Oliver Williams, Sunderland; Mrs. J. S. Adams, Amherst; Mrs. Alfred Baker, do.

On Maple Sugar. Dr. F. H. Rice, Shutesbury, Chairman. Mrs. Peter Spaulding, Montague; Mrs. Ashley Hubbard, Sunderland; Mrs. Timothy Putnam, Leverett; Mrs. A. P. Howe, Amherst.

On Honey. Rev. C. L. Woodworth, Amherst, Chairman. Mrs. David Cowles, Hadley; Mrs. Lyman Kellogg, Amherst; Mrs. James M. Barton, Granby; Mrs. R. S. Lincoln, Amherst; Gamaliel Collins, Palmer.

On Mechanic Arts and Agricultural Implements. C. H. Field, Leverett, Chairman. Benjamin Adams, Hadley; Lucius Ferry, Granby; G. W. Hobart, Amherst; Albert Montague, Sunderland; Emory Ballou, Pelham; Joel Packard, Belchertown; Nathaniel Allen, Amherst.

On Vegetables and Grains. Benjamin DeWitt, Granby, Chairman. Elihu Smith, Sunderland; Oren Williams, Amherst; Daniel Cowles, Hadley; Timothy Smith, Amherst.

On Fine Arts and Fancy Articles. M. B. Green, Amherst, Chairman. Mrs. S. M. Hubbard, Sunderland; Mrs. David Eastman, Leverett; Mrs. Luke Sweetser, Amherst; Mrs. Wm. P. Dickinson, Hadley; Mrs. G. A. Smith, South Hadley; Mrs. E. S. Dwight, Amherst; Mrs. C. S. Ferry, Granby; Mrs. G. B. Jewett, Amherst; Mrs. Calvin Russell, Montague; Mrs. N. D. Adams, Shutesbury; Mrs. J. W. Boyden, Amherst; Mrs. David Pratt, do.; Mrs. Prof. Field, do.

On Domestic Manufactures. Francis Frary, Leverett, Chairman. Mrs. E. S. Snell, Amherst; C. F. Hayward, do.; Mrs. Al-

bert Montague, Sunderland; Mrs. E. D. Hubbard, Amherst; Mrs. Abijah Fales, Pelham; Mrs. S. F. Dudley, Shutesbury; Mrs. A. L. Field, Leverett; G. A. Smith, South Hadley; Mrs. Lyman Gunn, Amherst; Mrs. Cyrus Ball, Leverett; Mrs. Hartly, Amherst; Mrs. Park Warner, Granby; Mrs. J. A. Nash, Amherst; Mrs. O. M. Clapp, do.; Oliver Watson, do.

On Fruit. Daniel Dickinson, Amherst, Chairman. Wm. P. Dickinson, Hadley; G. E. Downs, Amherst; Josiah Ayres, do.; Mrs. E. F. Cook, do.; Cotton Smith, do.; C. S. Ferry, Granby; Mrs. J. M. Smith, Sunderland; Mrs. Emory Ballou, Pelham; Mrs. Ephraim Montague, Belchertown.

On Stallions. J. M. Emerson, Amherst, Chairman. A. S. Howe, Shutesbury; Orestes Richards, Cummington; Ebenezer Wiley, Sunderland; Benson Aldrich, Belchertown.

On Draft Horses. Alonzo Warner, Granby, Chairman. Emory H. Needham, Amherst; N. W. Aldrich, Pelham; Henry Shepard, Northampton; Austin Eastman, Amherst.

On Farm Horses. Wm. J. Patrick, Granby, Chairman. Timothy Putnam, Leverett; William Gaylord, Sunderland; S. F. Dudley, Shutesbury; E. F. Cook, Amherst.

On Breeding Mares and Colts. Samuel Nash, Hadley, Chairman. H. A. Longley, Belchertown; Alden Graves, Sunderland; Ransom Nutting, Leverett; E. P. Whitney, Amherst; J. G. Ward, Pelham.

On Colts. George Dickinson, Hadley, Chairman. John Sisson, Belchertown; J. R. Cushman, Amherst; Seth Wood, Leverett; Thomas Reed, C. Fish, Amherst.

On Essays. David Rice, Leverett, Chairman. Albert Montague, Sunderland; J. A. Nash, Amherst.

FIFTH ANNUAL EXHIBITION,

AT AMHERST,

Wednesday and Thursday, October 18th and 19th, 1854.

The Exhibition occupied two days, in pursuance of the vote of the Society, at its last annual meeting. This change was very generally desired and has given universal satisfaction to competitors, committees, and to all persons interested in the prosperity of the institution. The exhibition in some respects was superior to any of its predecessors. Not less than six hundred persons competed for the Society's premiums, and they were from Amherst, Belchertown, Chester, Conway, Deerfield, Erving, Granby, Hadley, Hatfield, Leverett, Montague, New Salem, Northampton, Pelham, Prescott, Shutesbury, South Hadley, Springfield, Sunderland and Whately.

In the enumeration of entries in each department of the exhibition, the towns and the competitors from each town, are arranged in the alphabetical order of their names.

SWEETSER'S HALL.

This Hall was open on both days. There were three tables covered with the choicest fruit. Three hundred and forty-seven plates were filled with superior apples. Many fine quinces and grapes, and a few peaches and pears were on exhibition. The display of Paintings and Drawings was extensive, and some specimens were in admirable taste. The departments of Fancy Articles and of Domestic Manufactures were attractive, as usual.

ENTRIES.

FRUIT.—APPLES, 347 plates. *Amherst*—Alfred Baker, 5 varieties; Lucius Boltwood, 9; Lucy Carter, 3; E. F. Cook, 8; Edward Dickinson, 9; George Dickinson, 9; M. S. Dickinson, 12; Samuel S. Dickinson, 16; Austin Eastman, 16; Stillman Hobart, 8; Orrin Johnson, 1; Henry C. Kellogg, 6; William W. Smith, 16; Jonathan Thayer. *Hadley*—Linus Green, 8 varieties; Rufus Scott, 19. *Montague*—Alonzo Paine, 1 variety. *Northampton*—Ashur Shepard, 64 varieties. *Prescott*—Benjamin P. Aiken, 16 varieties; Christopher Paige, 14. *Sunderland*—Ransom Dickinson, 13 varieties; Timothy Graves, 1 variety; Avery D. Hubbard; N. Austin Smith, 20; Levi P. Warner, 8.

QUINCES, 13 entries. *Amherst*—William Boltwood, Alonzo Dutton, Austin Eastman, Edward S. Field, Joseph E. Marshall, William W. Smith, Jonathan Thayer, Phineas Warner. *Hadley*—Linus Green, Cotton Smith. *Sunderland*—Ransom Dickinson, Brainard Smith, Elihu Smith.

GRAPES, 3 entries. *Amherst*—Charles Adams, Catawba; John Dickinson, do. *Sunderland*—Ransom Dickinson, Isabella.

PEACHES. *Montague*—Alonzo Paine.

PEARS. *Sunderland*—N. Austin Smith.

MISCELLANEOUS. *Hadley*—Mrs. C. D. Dickinson, tomato figs. *Sunderland*—N. A. Smith, mock oranges.

DOMESTIC MANUFACTURES, 26 entries. *Amherst*—Mrs. Clinton J. Cowles, rag-carpet; Miss Nancy Cowles, bed-quilt; Mrs. E. A. Cummings, rag-carpet; Miss Abby J. S. Dickinson, bed-quilt; Miss Mary E. W. Dickinson, bed-quilt; Mrs. Austin Eastman, stockings, table-spread; Mrs. Rufus Goodell, cushion, stockings; Mrs. William F. Gunn, bed-quilt; Mrs. Stillman Hobart, rag-carpet; Mrs. Eleazer Kellogg, rag-carpet; Mrs. William Kellogg, stockings and yarn. *Belchertown*—Mrs. J. Bartlett, rag-carpet; Mrs. Gilmore, bed-quilt. *Granby*—Mrs. Rodney Ayres, rugs; Ayres & Aldrich, satinets. *Hadley*—Mrs. Linus Green, hearth-rug; Mrs. Z. M. Lyman, stair-carpet, woolen shoes. *Leverett*—Miss Sibil B. Fitts, tidy; Mrs. P. Hobart, rag-carpet. *Montague*—Mrs. Orrin Paine, bed-quilt. *So. Hadley*—Mrs. P. Smith, counterpane. *Sunderland*—Miss S. Brown, palm-leaf hats; Mrs. Eliphalet Clark, two rag-carpets; Mrs. Grover, palm-leaf hats; Mrs. Alanson Hubbard, bed-quilt; T. E. Munsel, a sack of cotton wicking; Mrs. N. A. Smith, hose, wool blankets.

Fine Arts, 14 entries. *Amherst*—Miss Julia M. Ball, painting in water colors; Miss Marietta Cowles, two paintings in oil; Mrs. E. A. Cummings, five paintings in oil, and wax fruit; Miss M. J. Green, monochrome, pencil drawings and embossed work; Mrs. Edward Hitchcock, three Grecian paintings and waiter; Miss Eliza A. Hobart, ornamental leather work; Miss Isabella Hobart, pastel painting; Miss M. R. Nims, two paintings in oil, two monochromes; Miss Pierce, crayon, vase paper flowers; E. G. Shumway, daguerreotypes. *Montague*—Miss Elizabeth C. Hartwell, painting in oil. *Northampton*—Wells & Leland, daguerreotype. *Sunderland*—Erastus D. Field, 17 paintings in oil; Miss E. A. Graves, two paintings in oil.

Fancy Articles, 35 entries. *Amherst*—Miss Sarah Ball, lamp-mat; Miss Nancy H. Cutler, embroidery; Mrs. John Dickinson, lace cape, worked sleeves; Miss Louisa Dickinson, cushion, embroidery; Miss F. J. Emerson, embroidery; Miss Sarah Ferry, bouquet; Miss Jane Haven, a bag; Miss Kate Howland, cushion; Miss M. Leland, lamp-mat; Miss S. Ann Linnell, embroidery; Miss Tempe S. Linnell, embroidery and worsted work; Miss M. R. Nims, blanket; Mrs. C. Sears, pillow; Charles Sweetser, moss house; Miss Mary Warner, worsted work, bead-bag, and collar; Miss Abby M. Wood, worsted work. *Belchertown*—Mrs. Loman A. Burnett, collar, ottoman, scarf; Miss S. C. Gates, skirt, tidy. *Granby*—Miss E. N. Ayres, skirt; Miss Ellen E. Montague, lamp-mat. *Hadley*—Mrs. Levi Adams, dressing-case; Mrs. C. D. Dickinson, bouquet; Mrs. T. G. Huntington, worked collar, tidy; Mrs. Cotton Smith, shell box. *Leverett*—Miss J. Cook, shirts, stockings; Miss Sibil B. Fitts, wax flowers; Miss E. Moore, mats. *Northampton*—Miss Netta A. Hawley, cradle-quilt. *Prescott*—Miss L. F. Haskins, needle-work. *South Hadley*—Mrs. H. M. Smith, ottoman. *Sunderland*—Mrs. Alanson Hubbard, ottoman-covers; Mrs. N. A. Smith, mats, vase; Mrs. J. R. Warner, mats, tidies.

SHOW IN PHENIX HALL.

The display in this Hall was extensive in the number, and superior in the quality of the articles exhibited. Thirty-six loaves of excellent Bread; two hundred and fifty-four pounds of golden Butter;

two hundred pounds of new milch Cheese; one hundred and thirty-five pounds of Flour from Wheat raised in this vicinity; two hundred pounds of Flour from Rye grown in this region; thirty pounds and more of superior Honey; forty pounds of Maple Sugar; hundreds of specimens of Garden Vegetables and Grains, and some thirty articles illustrating the skill of our mechanics, were the leading attractions.

ENTRIES.

WHEAT BREAD, 13 Loaves. *Amherst*—Mrs. Bela U. Dickinson, Mrs. Edward Dickinson, Mrs. Alonzo Dutton, Mrs. George H. Farrar, Mrs. Joseph P. Gray, Mrs. John Lyman. *Granby*—Mrs. Cyrus Stebbins. *Montague*—Mrs. Peter Spaulding. *Northampton*—Mrs. Henry Shepard. *Sunderland*—Mrs. C. B. Hubbard, Mrs. Oliver Williams.

RYE BREAD, 14 Loaves. *Amherst*—Mrs. Bela U. Dickinson, Mrs. Alonzo Dutton, Miss Elizabeth Wheelock. *Granby*—Mrs. Cyrus Stebbins. *Hadley*—Mrs. Linus Green. *Leverett*—Mrs. Orus Ball, Mrs. Baxter Hobart. *Montague*—Mrs. Peter Spaulding. *Sunderland*—Mrs. A. L. Clark, Mrs. Eliphalet Clark, Mrs. Alanson Hubbard, Mrs. Albert Montague, Mrs. Nathaniel Smith, Mrs. Oliver Williams.

RYE AND INDIAN BREAD, 9 Loaves. *Amherst*—Mrs. Samuel S. Dickinson. *Leverett*—Mrs. Orus Ball, Mrs. Harrison O. Field. *Montague*—Mrs. Peter Spaulding. *Northampton*—Mrs. Henry Shepard. *Pelham*—Mrs. A. A. Rankin. *Sunderland*—Mrs. Eliphalet Clark, Mrs. C. B. Hubbard, Mrs. Albert Montague.

WHEAT FLOUR, 135 pounds. *Hadley*—George Dickinson, William P. Dickinson, Rufus Scott. *Sunderland*—Ransom Dickinson, D. D. & J. Whittemore, Jr.

RYE FLOUR, 200 pounds. *Amherst*—Bela U. Dickinson. *Hadley*—George Dickinson, William P. Dickinson. *Sunderland*—Eliphalet Clark, Alanson Hubbard, Albert Montague, Nathaniel Smith, Levi P. Warner.

BUTTER, 254 pounds. *Amherst*—Mrs. Simeon Clark, Mrs. Chester Cowles, Mrs. Bela U. Dickinson, Mrs. John Dickinson, Mrs. Alonzo Dutton, Mrs. Joseph P. Gray, Mrs. Edmund Hastings, Mrs. Harrison Ingram, Mrs. Horace Kellogg, Mrs. John Lyman, Mrs. G. C, Munsell, Mrs. Cotton Smith. *Hadley*—Mrs. Wm. P. Dickinson. *Montague*—Mrs. Peter Spaulding. *Sunderland*—Mrs. Austin L. Clark, Mrs. Ransom Dickinson, Mrs. C. B. Hubbard, Mrs. Albert

Montague, Mrs. Brainard Smith, Mrs. Nathaniel Smith, Mrs. Levi P. Warner.

Cheese, 200 pounds. *Amherst*—Mrs. Jonathan Cowles, Jr., Mrs. Samuel S. Dickinson, Mrs. Horace Kellogg, Mrs. Reuben Thayer. *Leverett*—Mrs. Harrison O. Field. *Montague*—Mrs. Orrin Paine. *Pelham*—Mrs. A. A. Rankin. *Sunderland*—Mrs Ransom Dickinson.

Maple Sugar, 33 pounds. *Leverett*—Harrison O. Field, 6 lbs. *Montague*—Peter Spaulding, 10 lbs. *Sunderland*—C. B. Hubbard, 5 lbs.; Z. M. Hunt, 5 lbs.; Albert Montague, 7 lbs.

Honey, 40 pounds. *Hadley*—David S. Cowles, 20 lbs.; R. D. Fish, 12 lbs. *Sunderland*—Ransom Dickinson, 8 lbs.

Vegetables, 42 entries. *Amherst*—Alfred Baker, Japan peas; D. L. Bangs, cabbages, beets, potatoes; William Boltwood, 3 varieties of beans; E. S. Church, red peppers; Prof. Clark, 8 varieties of potatoes, 2 of turnips; Levi D. Cowles, onions; Marquis F. Dickinson, potatoes and turnips; William W. Dickinson, beets, squashes, cabbages; Austin Eastman, onions; George H. Farrar, 3 varieties of squashes; Flavel Gaylord, 2 varieties of potatoes; Edmund Hastings, 2 varieties of turnips; Harrison Ingram, turnips and carrots; John Lyman, cabbage; John Mathews, carter potatoes; Daniel Paine, potatoes. *Belchertown*—Cephas Hyde, 2 superior varieties of squashes. *Granby*—Rodney Ayres, Japan peas; Lucius Ferry, beet. *Hadley*—Levi Adams, 4 squashes; Edwin Chapin, beets; David S. Cowles, beets, carrots, onions, and turnips; George Dickinson, 4 varieties of beans, 3 do. of potatoes, broom-brush, broom-seed and rye; Rufus Scott, potatoes. *Leverett*—Silas Ball, 5 varieties of potatoes; William H. Smith, peach-blow potatoes. *Montague*—Joshua Marsh, pumpkin. *Pelham*—Pliny Boyden, Jenny Lind potatoes; C. D. Eaton, peach-blow potatoes. *Prescott*—Christopher Paige, blood-beet, carrots, parsnips, and potatoes. *Sunderland*—Hubbard Graves, California potatoes; Horace Henderson, everlasting squash; John M. Smith, 12 varieties of potatoes; Levi P. Warner, turnips, and 4 quarts of beans.

Grains, 15 entries. *Amherst*—Edmund Hastings, seed corn; Austin Loomis, seed corn. *Deerfield*—Moses Stebbins, seed corn; *Hadley*—David S. Cowles, 5 varieties of seed corn; George Dickinson, Trace seed corn and Mapes's evergreen sweet corn; William P. Dickinson, seed wheat; Rufus Scott, Genesee white flint wheat. *Sunderland*—Sylvester Brown, seed corn; Ransom Dickinson, 2

varieties seed corn; John M. Smith, seed corn and red-top grass seed; Nathaniel Smith, herds-grass seed; Levi P. Warner, seed corn and rye; D. D. & J. Whittemore, Jr., seed wheat; Oliver Williams, grass seed.

Mechanic Arts, 30 entries. *Amherst*—David S. Cook, garden and fire engines; Porter Dickinson, patent corn-sheller; Field & Strickland, cottage bedstead, chair, couch, rocking-chair, card-table, ottomans; Walter Fuller, floating-ball washing-machine; W. S. Howland, patent window-springs; Lovett & Dickinson, axe, hook, fork, shovel, hammer and bush-cutter; Charles E. Morse, patent washing-machine; David S. Warner, Cataract Engine, No. 1, of Amherst, manufactured by L. Button & Co., Waterford, N. Y. *Belchertown*—J. Packard & Co., elegant buggy. *Chester Village*—C. W. Hannum, edge tools. *Granby*—G. H. Brown, model of a patent telegraph. *Hadley*—Joseph Adams & Sons, bent rims and saw buck; George Dickinson, 12 brooms; Hubbard Lawrence, 12 brooms and sign-broom; S. C. Wilder, corn-plow and grape-cradler; *Montague*—L. G. Rice, superb seraphine. *New York*—Joseph Colton, mitre machine. *South Hadley*—H. L. Watts, horse shoes. *Sunderland*—L. Fish, 12 brooms; Henry O. Williams, broadcast seed and manure-sower; Oliver Williams, corn-planter and manure-dropper. *Whately*—J. M. Crafts, file.

SHOW OF FARM STOCK.

The collection of Cattle was the best ever exhibited at any fair of the Hampshire Society, although not so many animals were on the ground, as on some former occasions. There was but one Town String—a noble one of forty-four pairs—from Hadley. The exhibition of Bulls and of young cattle was better than ever before. The breeds were of the choicest, and the specimens displayed points and qualities, showing a decided advance in thorough breeding. Sheep were not numerous, but were of those excellent varieties, the South Downs, Merinoes and Cotswolds. The display of Swine included some very fine Suffolks and other improved breeds. The show of Poultry was good.

ENTRIES.

Strings of Cattle. *Hadley*—Forty-four Pairs.

Bulls. *Amherst*—Alfred Baker, 2 Devons, 1 and 2 years old; Levi D. Cowles, Devon, 6 years; Edward Hitchcock, grade Durham, 11 months, 755 lbs.; Edmund Hobart, grade Durham and Devon 2 years, 1112 lbs.; Reuben Thayer, Devon, 4 years; Ebenezer Williams, grade Durham and Devon, 3 years, 1795 lbs. *Belchertown*—Barnard Arnold, Durham, 1 year; Ira Fenton, grade Durham and Devon, 5 years. *Erving*—A. H. Albee, grade Durham, 19 months. *Granby*—Augustus Clark, Durham, 16 months. *Prescott*—Christopher Paige, grade Durham, 2 years.

Steers, three years old. *Amherst*—W. E & S. S. Dickinson, Devon and Hereford; Emory H. Needham, Native, 2560 lbs. *Belchertown*—George O. Hannum, Durham, 3300 lbs. *Granby*—George N. Smith, Durham, 3640 lbs. *South Hadley*—Edmund Smith, 2885 lbs.

Steers, two years old. *Amherst*—George A. Pomeroy, grade Hereford, 30 months, 2190 lbs. *Belchertown*—George O. Hannum, Durham, 2235 lbs. *Conway*—Cephas May, twin Durhams, 26 months. *Hadley*—Chester Gray, Native, 2690 lbs.; William P. Dickinson, Native.

Steers, one year old. *Amherst*—William W. Smith, Durham and Ayreshire; Russell T. Wheelock, grade Durham. *Conway*—Cephas May, Devon. *Hadley*—T. P. Huntington, Native. *Leverett*—Cephas Porter, twin Natives, 1680 lbs.

Cattle for the Stall. *Deerfield*—Moses Stebbins, Hereford, 6 years, 3757 lbs.; Same, Natives, 7 years, 4277 lbs. *Granby*—Nelson Smith, Natives, 6 years, 3485 lbs. *Sunderland*—D. D. & J. Whittemore, Jr., Natives, 5 years.

Milch Cows. *Amherst*—Bela U. Dickinson, Native, 7 years; William W. Dickinson, grade Durham, 11 years. *Granby*—Augustus Clark, Durham, 7 years; same, Durham, 11 years. *Hadley*—William P. Dickinson, grade Devon, 6 years.

Heifers. *Amherst*—Alfred Baker, grade Ayrshire, 1 year; Lucius Boltwood, Native, 18 months; Spencer Church, grade Durham, 2 years; Mrs. T. Jones, grade Ayrshire, 1 year; G. C. Munsell, Short-horn, 2 years; Thomas Reed, grade Durham, 2 years, 1077 lbs. *Hadley*—T. G. Huntington, grade Durham, 2 years. *Prescott*—Christopher Paige, 2 grade Durhams, yearlings.

Calves—Bulls. *Amherst*—William W. Dickinson, Native, 11 months; William C. Fowler, thorough-bred Alderney, 3 months; Luke Sweetser, thorough-bred Ayrshire, 4 months.

CALVES—HEIFERS. *Amherst*—Bela U. Dickinson, Native, 10 weeks; Luke Sweetser, thorough-bred Ayrshire, 3 months.

CALVES—STEERS. *Amherst*—Willard M. Kellogg, twin Natives, 11 months. *Conway*—Cephas May, 2 Durhams, 9 months; Same, single Durham, 11 1-2 months.

SHEEP—BUCKS. *Amherst* — Cotton Smith, South Down and Smut-face, 1 year. *Granby*—Augustus Clark, French and Native, 2 years. *South Hadley*—J. M. Hatfield, Cotesworth, 2 years; same, South Down, 2 years.

SHEEP—EWES. *Amherst* — Cotton Smith, South Downs and Smut-faces, 1 and 4 years. *Granby*—Augustus Clark, French and Spanish, 1 year; same, a lot of South Downs.

SWINE—BOARS. *Amherst*—Cotton Smith, Suffolk and Mackay, 1 year. *Granby*—Orsemus Richardson, Suffolk and Belgian, 10 months. *Leverett*—Ransom Nutting, Suffolk, 18 months. *Sunderland*—Hubbard Graves, grade Suffolk, 16 months.

SWINE—SOWS AND PIGS. *Amherst*—Thomas Hastings, grade Suffolk, sow 1 year, pigs 1 week old. *Leverett*—Harrison O. Field, grade Suffolk, sow 1 year, pigs 24 days old. *Sunderland*—Brainerd Smith, Mackay and Granite, sow 13 months, pigs 12 weeks old; Levi P. Warner, grade Suffolk, sow 14 months, pigs 2 weeks old.

SWINE—LITTERS OF PIGS. *Amherst*—Flavel Gaylord, grade Suffolk, 10 weeks. *Sunderland*—Sylvester Brown, Suffolk, 5 weeks; Claudius B. Hubbard, 6 months.

POULTRY. *Amherst*—E. S. Church, Whirlwind Chickens; Edward Sears, Bantams. *Hadley*—Levi Adams, Bantams. *South Hadley*—W. H. Woodford, Poland Bantams. *Sunderland* — E. Porter Dickinson, Turkeys; Claudius B. Hubbard, Turkeys; Zebina Hubbard, Turkeys, Ducks and Chickens; Levi P. Warner, Chickens.

DRAWING MATCH.

The trial of working oxen took place, on Wednesday, at noon, in the highway, near the First Congregational Church. Eighteen pairs entered for the premiums. Each pair was required, according to the Show Bill, to draw up the hill a cart, loaded with three thousand pounds weight, and to be exercised in backing and turning. The premiums were to be awarded according to the docility and training

of the cattle, their match in color, strength, size, weight and breed, as well as their performance at the trial. The scene was exciting and attracted a dense mass of interested beholders.

ENTRIES.

Working Oxen, five years old and upwards. *Amherst*—Levi D. Cowles, Natives, 7 years, 3215 lbs.; John Dickinson, Natives, 7 years, 3334 lbs.; same, Natives, 7 years, 3130 lbs.; Flavel Gaylord, Natives, 6 years, 3425 lbs.; Willard M. Kellogg, Durhams, 5 years; Orrin Johnson, Natives, 6 years, 3302 lbs.; Jonathan Pierce, Natives, 5 years, 3255 lbs.; Samuel Prince, Natives, 5 years, 3660 lbs.; Ebenezer Williams, Natives, 7 years, 4020 lbs. *Granby*—George N. Smith, grade Durhams, 5 years, 3900 lbs. *Hadley*—Parsons West, Natives, 5 years, 3212 lbs. *Pelham*—Ansel A. Rankin, Natives, 5 years, 3036 lbs. *South Hadley*—Edwin H. Judd, Durhams, 5 years, 3885 lbs.; Hovey Moody, Natives, 5 years, 3425 lbs. *Sunderland*—D. D. & J. Whittemore, Jr., Natives, 5 years, 4005 lbs.

Oxen, four years old. *Amherst*—William Boltwood, Natives; Emory H. Needham, Natives, 2810 lbs. *Hadley*—Chester Gray, Natives, 3486 lbs.

PLOWING MATCH.

Wednesday afternoon, at two o'clock, the plowing commenced. The land selected for the occasion is situated on the new road from Amherst to Hadley, half a mile west of the Colleges, and belongs to Mr. A. P. Howe. Although there was a respectable shower at the time the plows started, the crowd in attendance was large and the work was vigorously prosecuted. Four Double Plows, six plows with horses and five drawn by oxen, entered for premiums. Each competitor drew his lot before going to the ground. The furrow was required to be not less than seven inches deep, and the work was done in silence, and fairly exhibited the excellence of the plows, the training of the teams and the skill of the plowmen.

ENTRIES.

Double Plows. *Amherst*—Chester Cowles, Ruggles, Nourse, Mason & Co.'s; Levi D. Cowles, Whittemore & Co.'s Chicopee

Plow; Horace Kellogg, Prouty & Mears's Boston Plow. *Northampton*—Henry Shepard, Ruggles, Nourse, Mason & Co's Worcester Plow.

Horse Teams. *Amherst*—Edward B. Lovett, Whittemore & Co.'s Chicopee Plow; William W. Smith, Prouty & Mears's Boston Plow. *Hadley*—Samuel C. Wilder, Prouty & Mears's Boston Plow. *Northampton*—Samuel L. Parsons, Prouty & Mears's Boston Plow; Elisha Strong, Ruggles, Nourse, Mason & Co.'s Worcester Plow; William Strong, Prouty & Mears's Boston Plow.

Ox Teams. *Amherst*—Danforth K. Bangs, Prouty & Mears's Boston Plow; Flavel Gaylord, Plow maker not given. *Granby*—David H. G. Nash, Prouty & Mears's Eagle C, Boston Plow. *Pelham*—Ansel A. Rankin—did not plow. *Sunderland*—E. Porter Dickinson, Whittemore & Co.'s Chicopee Plow.

SHOW OF HORSES.

The exhibition of horses occurred on Thursday, at nine o'clock in the forenoon. The number of competitors was seventy-seven. There was one committee on Stallions; another on Mares and Colts; a third, on Draft Horses; a fourth on Single Farm Horses; and a fifth on colts. The horses were distributed among these committees and occupied separate stations.

It is the duty of an Agricultural Society, to encourage horses, adapted to farm or agricultural uses. But it has been suggested, that, if the funds of the Society will admit, premiums might well be offered in future on Carriage Horses.

Improvement in the horses and in the modes of exhibiting their points, was very obvious, and is attributed, in part, to the influence of the National Horse Show, in 1853, at Springfield.

ENTRIES.

Stallions. *Granby*—Milo A. Taylor, Morgan, 5 years old; *New Salem*—Nelson Haskins, Morgan, 6 years. *Shutesbury*—A. S. Howe, Moscow and Morgan, 7 years, 1098 lbs.

Mares and Colts. *Amherst*—William S. Clark, Colt 4 1-2 months; Ansel C. Marshall; G. C. Munsell, Mare 11 years, Colt 4

1-2 months. *Granby*—William J. Patrick, Mare 20 years old. *Hadley*—T. G. Huntington, Mare 10 years, 1007 lbs., Colt 4 months, 425 lbs. *Leverett*—David Kimball, Mare 12 years, Colt 5 months.

Draft Horses in Pairs. *Amherst*—E. Foster Cook, Morgans, 4 and 5 years; Levi D. Cowles, Natives, 7 years; William F. Gunn, Natives, 8 and 9 years, 2330 lbs.; Edward B. Lovett, Natives, 12 and 16 years. *Belchertown*—William Thayer, Duroc and Messenger, 7 and 8 years. *Granby*—G. N. Smith, 9 and 10 years. *Hatfield*—Elisha Hubbard, Morgans, 6 and 7 years. *Pelham*—A. A. Rankin, Morgans, 4 and 5 years, 1865 lbs.

Single Farm Horses. *Amherst*—Henry Clark, 8 years, 1192 lbs.; E. Foster Cook, 8 years; Edward Dickinson, Eclipse, 11 years; Asahel Gates, grade Morgan, 8 years, 1005 lbs.; Flavel Gaylord, Guilford, 5 years; Joseph P. Gray, 5 years; Emory H. Needham, two grade Morgans, 4 and 5 years; William W. Smith, 7 years; Luke Sweetser, 10 years; Dr. Taylor, 5 years; J. H. Winter, grade Morgan, 7 years. *Conway*—George Pratt, Morgan, 4 years. *Hadley*—David S. Cowles, 4 years; J. B. Kentfield, grade Morgan, 4 years; Charles Smith, 9 years; David White, 5 years, 952 lbs. *Hatfield*—Elisha Hubbard, Morgan, 6 years. *Leverett*—Abner Gilbert, Morgan, 4 years, 890 lbs.; Ransom Nutting, 8 years. *Pelham*—A. A. Rankin, Morgan, 5 years. *Prescott*—Christopher Paige, 11 years. *South Hadley*—Harry Smith, Morgan, 7 years. *Springfield*—D. J. Bartlett, Morgan, 7 years. *Sunderland*—Edwin Field, French, 7 years.

Colts, three years old. *Amherst*—Alfred Baker, William C. Fowler; H. C. Howard, grade Morgan, 812 lbs.; Henry Kellogg, Morgan; Austin Loomis; A. G. Mossman, Morgan, 3 years, 930 lbs.; G. C. Munsell, grade Morgan. *Granby*—Nelson Smith, 1100 lbs.; Alonzo Warner, grade Black Hawk. *Greenwich*—Sylvester Lincoln, Hunter. *Hardwick*—Edward Dean, Morgan. *Leverett*—Harrison Field, 892 lbs. *Pelham*—Joseph G. Ward, grade Black Hawk, 850 lbs.; same, do., 820 lbs.; same, breed not given. *South Hadley*—C. Newton Montague; Gilbert A. Smith, Morgan lion, 1055 lbs. *Sunderland*—Austin L. Clark, breed not given; Alden Graves, French, 915 lbs.

Colts, two years old. *Amherst*—Oliver H. Curtis, grade Morgan, 930 lbs.; H. C. Howard, grade Morgan, 910 lbs.; Marquis F. Dickinson, Longley's Kentucky Hunter. *Belchertown*—Barnard Arnold. *Conway*—George Hamilton. *Deerfield*—Alvan Stebbins,

grade Morgan, 1082 lbs. *Granby*—Nelson Smith. *Hadley*—Simon F. Comins, grade Morgan; Theodore Pasco, Ingram's. *Leverett*—Seth Wood, Morgan, 900 lbs. *Prescott*—Christopher Paige, Morgan. *South Hadley*—C. N. Montague; Hovey Moody, grade Morgan.

COLTS, ONE YEAR OLD. *Shutesbury*—A. S. Howe, Clay and Messenger, 760 lbs.

LIST OF PREMIUMS AWARDED.

FARMS.
Austin Smith & Sons, Sunderland, $20
Theophilus P. Huntington, Hadley, 10

WHEAT CROP.
D. D. & J. Whittemore, Jr., Sun'l'd, $5

CORN CROP.
Austin L. Clark, Sunderland, $5
Chester Cowles, Amherst, gr., 3

RYE CROP.
George Dickinson, Hadley, $4
Chester Cowles, Amherst, gr., 2

TURNIP CROP.
O. & F. H. Williams, Sunderland, $3

CARROT CROP.
O. & F. H. Williams, Sunderland, $2

OAT CROP.
Albert Montague, Sunderland, $3

POTATO CROP.
C. D. Eaton, Pelham, gr., $3
Chester Cowles, Amherst, gr., 2

CROP OF HERDSGRASS SEED.
Oliver Williams, Sunderland, gr., $2

MANURES.
Kelita Hubbard, Sunderland, $6
Avery D. Hubbard, Sunderland, 4

RECLAIMED SWAMPS.
Samuel Powers, Hadley, $8
John A. Morton, Hadley, 6
Avery D. Hubbard, Sunderland, 4

APPLE ORCHARDS.
Theodore Pasco, Hadley, $5
Nathaniel Smith, Sunderland, 2

OLD ORCHARD RECLAIMED.
Avery D. Hubbard, Sunderland, $3

PEACH ORCHARD.
Daniel Cowles, Hadley, $3

NURSERY.
Melzar Hunt, Sunderland, $3

ESSAY.
Leander Wetherell, Amherst, $10

STRINGS OF CATTLE.
Town of Hadley, $20

BULLS.
Edmund Hobart, Amherst, $8
Ira Fenton, Belchertown, 6
A. H. Albee, Erving, 4
Augustus Clark, Granby, 2

STEERS, THREE YEARS OLD.
George N. Smith, Granby, $4
W. E. & S. S. Dickinson, Amherst, 3
George Hannum, Belchertown, 2

STEERS, TWO YEARS OLD.
Cephas May, Conway, $3
Chester Gray, Hadley, 2
George Hannum, Belchertown, 1

STEERS, ONE YEAR OLD.
Cephas Porter, Leverett, $2
William W. Smith, Amherst, 1

CATTLE FOR THE STALL.
Moses Stebbins, Deerfield, $5
Moses Stebbins, Deerfield, 4
Nelson Smith, Granby, 3

MILCH COWS.
Augustus Clark, Granby, $6
William W. Dickinson, Amherst, 5
William P. Dickinson, Hadley, 4
Bela U. Dickinson, Amherst, 3
Augustus Clark, Granby, 2

HEIFERS, TWO YEARS OLD.

Spencer Church, Amherst, $3
Thomas Reed, Amherst, 2

HEIFERS, ONE YEAR OLD.

Christopher Paige, Prescott, $2
Mrs. Thomas Jones, Amherst, 1

CALVES.

Willard M. Kellogg, Amherst, $2
Luke Sweetser, Amherst, 2
Luke Sweetser, Amherst, 2

BOARS.

Ransom Nutting, Leverett, $4
O. Richardson, Granby, 3

SOWS AND PIGS.

Brainerd Smith, Sunderland, $4
Thomas Hastings, Amherst, 3

LITTERS OF PIGS.

Claudius B. Hubbard, Sunderland, $3
Levi P. Warner, Sunderland, 2

BUCKS.

Cotton Smith, Amherst, $2
Augustus Clark, Granby, 1

EWES.

Cotton Smith, Amherst, $2
Augustus Clark, Granby, 1

POULTRY.

E. Porter Dickinson, Sunderland, $2
Levi P. Warner, Sunderland, 1,50
Claudius B. Hubbard, Sunderland, 1,
Elihu S. Church, Amherst, ,50

WORKING OXEN, FIVE YEARS OLD.

D. D. & J. Whittemore, Jr., Sunderland, $5
Edwin H. Judd, South Hadley, 4
Willard M. Kellogg, Amherst, 3

WORKING OXEN, FOUR YEARS OLD.

Emory H. Needham, Amherst, $4
Chester Gray, Hadley, 3

PLOWING WITH OX TEAMS.

Ebenezer P. Dickinson, Sunderland, $6
David N. G. Nash, Granby, 4
Flavel Gaylord, Amherst, 3

PLOWING WITH HORSE TEAMS.

William Strong, Northampton, $5
Samuel C. Wilder, Hadley, 4
William W. Smith, Amherst, 3
Samuel L. Parsons, Northampton, 2
Elisha Strong, Northampton, 1

PLOWING WITH DOUBLE PLOWS.

Levi D. Cowles, Amherst, $3
Chester Cowles, Amherst, 2

WHEAT BREAD.

Mrs. H. Shepard, Northampton, $1,50
Mrs. Geo. H. Farrar, Amherst, 1,00
Mrs. Bela U. Dickinson, Amherst, ,50

RYE BREAD.

Mrs. Nath'l Smith, Sunderland, $1,50
Mrs. R. B. Hobart, Leverett, 1,00
Mrs. Alanson Hubbard, Sunderl'd, ,50

RYE AND INDIAN BREAD.

Mrs. Ansel A. Rankin, Pelham, 1,00
Mrs. Peter Spaulding, Montague, ,50

WHEAT FLOUR.

Rufus Scott, Hadley, $1,00
D.D. & J Whittemore, Jr., Sund'l'd, ,50
W. P. Dickinson, Hadley, gr. bag wheat.

RYE FLOUR.

Alanson Hubbard, Sunderland, $1,00
Albert Montague, Sunderland, ,50

BUTTER.

Mrs. L P. Warner, Sunderland, $4.00
Mrs. Guy C. Munsell, Amherst, 3,50
Mrs. Brainerd Smith, Sunderland, 3,00
Mrs. C. B. Hubbard, Sunderland, 2,50
Mrs. Nath'l Smith, Sunderland, 2,00
Mrs. Simeon Clark, Amherst, 1,50
Mrs. Harrison Ingram, Amherst, 1,00
Mrs. Cotton Smith, Amherst, ,50

CHEESE.

Mrs. S. S. Dickinson, Amherst, $2,50
Mrs. Ansel A. Rankin, Pelham, 2,00
Mrs. Jona. Cowles, Jr., Amherst, 1,50
Mrs Harrison O. Field, Leverett, 1,00
Mrs. Orrin Payne, Montague, ,50

MAPLE SUGAR.

Peter Spaulding, Montague, $1,00
Claudius B. Hubbard, Sunderland, ,75
Albert Montague, Sunderland, ,50

HONEY.

David S. Cowles, Hadley, $1,00
Ransom Dickinson, Sunderland, ,75

STALLIONS.

Nelson Haskins, New Salem, $5
Abraham S. Howe, Shutesbury, 4

FARM HORSES.

D. J. Bartlett, Springfield, $3
Joseph P. Gray, Amherst, 2
Asahel Gates, Amherst, 1

DRAFT HORSES.

William Thayer, Belchertown, $4
Enos F. Cook, Amherst, 3

MARES WITH COLTS.

Guy C. Munsell, Amherst, $4
Theodore G. Huntington, Hadley, 3
William J. Patrick, Granby, 2

THREE YEARS OLD COLTS.

Sylvester Lincoln, Greenwich, $3
Harrison Field, Leverett, 2

TWO YEARS OLD COLTS.

George W. Hamilton, Conway, $2
Alvan Stebbins, Deerfield 1

YEARLING COLTS.

Abraham S. Howe, Shutesbury, 1

DOMESTIC MANUFACTURES.

Mrs. P. Smith, South Hadley, $3
Mrs. Z. M. Lyman, do. 2
Mrs. Rodney Ayres, Granby, 2
Ayres & Aldrich, do. 2
Mrs. E Clark, Sunderland, 2
Mrs. N. A. Smith, do. 2
Mrs. O. Paine, Montague, 2

Mrs. R. Goodell, Amherst, $2,00
Mrs. E. Kellogg, do. 1,00
Miss N. Cowles, do. 1,00
Mrs. A. Eastman, do. 1,00
Mrs. W. F. Gunn, do. 1,00
Mrs. W. M. Kellogg, do. 1,00
Mrs. Gilmore, Belchertown, 1,00
Mrs. P. Hobart, Leverett, 1,00
Mrs. A. Hubbard, Sundeland, 1,00
Mrs. S. Brown, do. ,75
Mrs. J. Bartlett, Belchertown, ,75
Mrs. Z. M. Lyman, South Hadley, ,75
Mrs. C. J. Cowles, Amherst, ,75
Miss A. J. S Dickinson, do. ,75
Miss M. E. W. Dickinson, do. ,75
Miss S. Hobart, do. ,75
Mrs. Eastman, do. ,50
Mrs. Grover, Sunderland, ,50
T. S. Munsell, do. ,50

FANCY ARTICLES.

Miss E. R. Nims, Amherst, $1,75
Miss Mary Warner, do. 1,50
Miss E. A. Graves, Sunderland, 1,25
Miss C. A. Pierce, Amherst, 1.00
Mrs. H. M. Smith, South Hadley, 1,00
Mrs. Burnett, Belchertown, ,95
E. D. Field, Sunderland, ,75
Miss Sophia Dickinson, Amherst, ,75
Mrs. E. Hitchcock, do. ,75
E. G. Shumway, do. ,75
Miss J. M. Ball, do. ,50
Mrs. E. A. Cummings, do. ,50
Mrs. J. Dickinson, do. ,50
Miss L. Dickinson, do. ,50
Miss E. A. Hobart, do. ,50
Miss J. Hobart, do. ,50
Miss M. R. Nims, do. ,50
Miss A. M Wood, do. ,50
Miss S. B. Fitts, Leverett, ,50
Mrs. L. Adams, Hadley, ,40
Miss N. A. Hawley, Northampton, ,40
E. N. Ayres, Granby, ,30
Miss E. Montague, do. ,30
Mrs. T. G. Huntington, Hadley, ,30
Mrs. J. R. Warner, Sunderland, ,30
Miss J. Haven, Amherst, ,30
Miss S. A. Linnell, Amherst, ,30
Miss T. S. Linnell, do. ,30
Miss Marietta Cowles, do. ,25
Miss M. J. Green, do. ,25
Miss C. Howland, do. ,25
Miss M. Leland, do. ,25
Miss S. Ball, do. ,25
Miss F. J. Emerson, do. ,25
Miss S. Ferry, do. ,25
Charles Sweetser, do. ,25
Mrs. N. A. Smith, Sunderland, ,25
Mrs. C. Smith, Hadley, ,25

APPLES.

Ashur Shepard, Northampton, 2,00
Austin Eastman, Amherst, 1,75
Edward Dickinson, Amherst, $1,50
Rufus Scott, Hadley, 1,25
Avery D. Hubbard, Sunderland, 1,00
N. A. Smith, do. ,75
William W. Smith, Amherst, ,50
Lucius Boltwood, do. ,50
Christopher Paige, Prescott, ,50

QUINCES.

Edward S. Field, Amherst, ,75
Phineas Warner, do. ,50
William Boltwood, do. ,25
William W. Smith, do. ,25

PEACHES.

A. Paine, Montague, ,50

GRAPES.

Ransom Dickinson, Sunderland, ,75
John Dickinson, Amherst, ,75
Charles Adams, do. ,50

TOMATO FIGS.

Mrs. C. D. Dickinson, Hadley, ,50

VEGETABLES AND GRAINS.

John M. Smith, Sunderland, $3,75
Levi P. Warner, do. 1,25
Silas Ball, Leverett, 1,00
Austin Loomis, Amherst, ,75
Rufus Scott, Hadley, ,75
Moses Stebbins, Deerfield, ,50
Levi D. Cowles, Amherst, ,50
D. L. Bangs, Amherst, ,30
William Boltwood, do. ,25
George H. Farrar, do. ,25
Marquis F. Dickinson, do. ,25
David S. Cowles, Hadley, ,25
Calvin D. Eaton, Pelham, ,25
Ransom Dickinson, Sunderland, ,25
Horace Henderson, do. ,20
Austin Eastman, Amherst, ,20
Edmund Hastings, do. ,20
Harrison Ingram, do. ,15
Cephas Hyde, Belchertown, ,15
Christopher Paige, Prescott, ,15

MECHANIC ARTS.

G. H. Brown, Granby, $3,00
Cataract Engine Co., Amherst, 3,00
L. G. Rice, Montague, 2,00
J. Packard & Co., Belchertown, 1,25
Field & Strickland, Amherst, 1,00
Lovett & Dickinson, do. 1,00
C. W. Hannum, Chester, ,75
Oliver Williams, Sunderland, ,60
H. O. Williams, do. ,50
David S. Cook, Amherst, ,50
Walter Fuller, do. ,50
Warren S. Howland, do. ,50
Hubbard Lawrence, Hadley, ,50
Samuel C. Wilder, do. ,50
H. L. Watts, South Hadley, ,50
J. M. Crafts, Whately, ,25
George Dickinson, Hadley, ,25
L. Fish, Sunderland, ,20
Joseph Colton, New York, ,20

PROCESSION, ADDRESS, AND DINNER.

The procession, on Thursday, at half-past eleven o'clock in the forenoon, was formed by Acting Chief Marshal, Horace Lyman of Sunderland. The South Hadley Band, the best of all our local bands, considering the style of music and the number of pieces, did escort duty. The procession marched through the principal streets, to the First Congregational Church. The assembly was greater than ever before gathered in Amherst, to hear an Agricultural address. Rev. EDWARD S. DWIGHT of Amherst opened the exercises with prayer. The Band discoursed excellent music. Rev. W. CLIFT of Stonington, Ct., delivered a well-written address, abounding in good points, which was received with great favor. After music by the band, the procession again formed, and marched to the Amherst House.

The DINNER was well attended by ladies and gentlemen. The President officiated at the table. The chairmen of the several Committees announced the premiums. The Secretary stated, that, during the past year, the Funds of the Society had increased from $3200 to $3500, and that the number of Life Members had increased from 734 to 800. The sixty-six new members are from Amherst, Belchertown, Granby, Hadley, Leverett, Montague, Northampton, Prescott, Sunderland, Ware and Williamsburgh. Speeches were made by Hon. EDWARD DICKINSON; Major JOSEPH COLTON of New York; SAMUEL NASH of Hadley; Hon. JOHN W. PROCTOR of Danvers; Rev. W. CLIFT of Stonington, Ct.; Prof. JOHN A. NASH; Rev. Mr. BULFINCH of Dorchester; and Hon. JOSEPH SMITH of Hadley.

On motion of Samuel Nash, seconded by Major Joseph Colton, the following resolution was unanimously adopted:

Resolved, as the sense of this society, that its prosperity and usefulness would be promoted by a larger and more convenient HALL, in which to exhibit the various articles, entered at these annual fairs.

ADDRESS

ON THE

ECONOMY OF SCIENTIFIC AGRICULTURE.

BY REV. W. CLIFT.

Mr. President, and Gentlemen:

Conducting your farm operations, in the communities that cluster around this seat of learning, and gathering here annually for the display of the products of your industry, assembled on this hill of science as a society of cultivators, the place and the occasion shall furnish the theme of our thoughts. For long ages, the farm and the college have been too widely separated. The farm has sent its most precious products hither, its noblest sons, but no reciprocal influence ever went back from the college to the old homestead. The treasures of science gathered here, enriched not the soil there. It was only as the sons took a final leave of the farm, as a home and a means of subsistence, that they sought the generous culture and the thorough discipline of the schools of science. The light gathered here illumed other professions and callings. At the homestead they learned nothing new of the soil or of its products. The streams, that flowed out hence, made glad every other spot, but the farm. Science gave the artizan, not only new methods of working, but new materials to work with. He now reaches results, in a day, that once could not be reached, in years. The home of the artizan, the merchant, and the professional man looks tasteful and thriving; while the old homestead every where shows signs of decay. There, on the farm, where economy most concerns every individual, it has been most lost sight of, and we are met here to-day, with the strange fact, that there has

been less of improvement in agriculture, than in any other field of human labor.

There is need, then, that the college should be on somewhat better terms with the farm; that it should make some honest returns to the soil, for the noble sons, which it has stolen away, diverted to other callings, that it should teach the husbandman, as well as the artizan, how to make the most of the materials, on which he relies for subsistence.

In calling your attention to *The Economy of Scientific Agriculture*, it is hardly necessary to remark, that the science of this art is yet in its infancy, if, indeed, it can be said to be born. Very few cultivators are able to give a reason for the faith that is in them, and the most enlightened of the calling are generally most cautious, in assigning the causes of the facts that come to light in their art. Yet there are certain principles, of great practical value, so far established, as to be safe guides, that ought to be every where disseminated. The tiller of the soil should know, so far as he can, the causes of those beautiful processes in nature, on which, success in his art depends.

It has been often asked, "what is the use of educating a boy, who is to till the soil? He is going to be nothing but a farmer." And the question shows, both a low estimate of the occupation, and of the qualifications for it. "Can he lift a bigger stone, or lay a smoother furrow, or drive a team, any the better, for his learning?" Though it be somewhat heretical, I venture the opinion, that an educated farmer can do the most common farm work, all the better, for his education. It is mind, enlightened by science, and disciplined by the study of the schools, that has given us all the improvements, in the implements of husbandry, and in the methods of culture, that we now enjoy.

What is meant, then, by a scientific farmer? I do not mean simply a book-worm, who has gone through the routine of college studies. The discipline of college is desirable, if a man would make the most of himself, in any calling, and were I shaping my own course for this occupation, I would not forego this discipline, if it were within my reach. But this is not necessary, that science may bring its blessings to every farm.

Nor is a scientific farmer necessarily a man of wealth and intelligence, retired from professional life, or some other calling, to amuse himself in rural occupations. There are such men, wise in other

things, but sciolists in the cultivation of the earth, who spend a hundred dollars to get a crop worth fifty from the soil. They are generally the laughing-stock of all common sense farmers, in their neighborhood, and are thought to be a standing refutation of the utility of book farming. But this argument is not fair. Agriculture is not their business, but their amusement; and they do not conduct their operations, at all, with reference to profit. No farmer understands the science of his business, until he sees his way clear, to get back every dollar of capital, that he expends upon his soil, with a large increase. He is a man, who understands both the science, and the practical details of every operation, upon the farm. He can tell you not only why a thing should be done, in a given way, and how to do it, but he can do it himself. He is a sceptic as to the wisdom of his grandfather, and believes, that even all agricultural knowledge did not die, with his father. He is a man who knows something about his business, and looks for new revelations in the future.

The man of science upon the farm, in the first place, knows something of the composition of his soils. These are the materials, on which, he is to display his skill, and out of which, he is to rear his harvests. There is a great difference in these, and without a proper knowledge of their ingredients, he cannot tell how to grow a crop to good advantage. It is all a matter of experiment, whether or not, he have a remunerative harvest. Without this knowledge, too, he is unable to tell, what amendments his soils require, even when the chemist has made an analysis of them. A farmer who does not understand this, is as poorly fitted for his business, as the smith would be, who did not comprehend the different qualities of metals, or the carpenter who could not tell the difference between white oak and white pine. The mechanic who should give you a pine plow-beam, or a chestnut axe-helve, would be called a bungler, or a knave. And yet his case would be parallel, with that of the farmer, who attempts a grain-crop, on a field that has lost its potash, or its phosphoric acid. The folly, in either case, is transparent. You have the form and semblance of strength, in the pine plow-beam, but no toughness, or durability. You have the stalks and the heads of the wheat, or the rye, but nog rain. Both are shams, because bunglers have made them. In the case of the grain crop, the blame is thrown upon nature, and it is declared that the wheat blasted. The poor man does not suspect himself, of a vain endeavor, to rival the Almighty —to make something out of nothing—and yet, that is practically the

policy of the farmer, who would grow a crop, without knowing whether the elements of that crop are in his soil.

He should also understand *the science of manures.* He must know their different qualities, and what it is in a given manure, that gives it its chief value. This alone will enable him, to prepare his compost-heap, so as to supply the wants of his soil, and his crops, to the best advantage. There are store-houses of manures, or rather divisors of manure; on almost every farm, and the educated farmer will know how to make the best use of the muck swamp, the leaf deposits of the forest, the clay, or the sand bank, the lime rock, or the deposit of marl. When the requisites of his crops are not to be found, on his own premises, he will know how to supply the deficiency from abroad, at the least expense.

He must also be acquainted with the laws of reproduction, both among plants and animals. Without this, he will not feel the importance of procuring the best stock, or the best seeds for his farm, or how to perpetuate these, when he has once obtained them. The importance of this department of agricultural knowledge, is not sufficiently understood. Other things being equal, the whole question of profit or loss, may depend upon the quality of the seeds, and the animals, with which a farm is stocked.

Another item, in the education of the farmer, is a knowledge of the markets, he has to supply. If he has only a distant market, he would naturally turn his attention to the grains, or to beef and pork —that beef keeps longer, and bears transportation better, than vegetables. If he has a home market, other articles can be grown to better advantage. Some farms, on account of their location, can be worked, very profitably, for raising root crops, and vegetables, that would pay small profits, for raising grain alone. It is quite as necessary to market his crops well, as it is to have good crops.

And to these items, a tact for neatness and good order, in his husbandry, and the farmer is intellectually furnished for his work. Good taste is as essential in his, as in any other calling; and his success in his business, quite as much depends upon it. The man, who can always make sales in the market, a little higher than any body else, is the man, who brings his articles in a little the neatest and cleanliest style. This catches the eye, takes captive the olfactories, and tickles the palate. The market man cannot resist him, for his works praise him. The man, with these qualifications, is a scientific farmer. He may not be educated in any thing else. He may not understand

the points in law, or the five points in theology, or the mysteries of medicine. He may be a know-nothing in politics, unable to tell who will be the next Governor, but he does know how to till the earth, and is educated in his business.

Such a knowledge of the science of his business is economical to the farmer himself, and to all the social, and religious interests of the community. Give all our farmers these qualifications, and not only are they greatly elevated, and benefited, as a class, but every other interest, in society is profited.

I come to speak, then, upon the economy of this scientific agriculture, to the farmers as a class. Some here to-day, possibly, do not find farming a very profitable business. Some, perhaps, hardly make the ends of the year meet, and others do not save more than two or three hundred dollars, annually, by their hard toil.

This knowledge of the principles of his business, which is within the reach of every cultivator, would help you, in the matter of dollars and cents. It would lead you to economize in the *quantity of soil you cultivate.* You now spread your labor, and your manure, over too much surface. The average produce of corn, per acre, in the state, is not over forty bushels. The experiments of educated farmers, in this and other states, have demonstrated, that a hundred bushels or more, can be raised, upon the same acre. Premiums upon this crop, in almost all your counties, have been awarded, varying from ninety, to one hundred and forty-five bushels, to the acre. It takes more labor, and more manure, but a bushel of corn is produced at least twenty-five per cent. cheaper, by thorough culture, than by the common process. So of all other crops. They can be grown much cheaper on a little land, than on a greater surface. The man of science would see this truth, and act upon it. Almost every farmer could sell half of his land, and get rich faster on the remaining half.

He would also economize, by a thorough *mechanical preparation of the soil.* Most men own a second farm, beneath their present surface, which has never been disturbed by the plow. Indeed, the shallow surface-plowing, has only served to harden, and consolidate the subsoil. There are more or less of the elements of crops in this subsoil, originally, and some of the salts of the manures, with which the surface has been dressed for ages, have found their way down into this unknown region. The roots of plants cannot penetrate thither, to get hold of this aliment, and it remains worthless, like

undiscovered gold in the mine. There is more wealth of this kind, in the subsoil of our farms, than in all the mines of California.

The educated farmer will put his subsoil plow into this mine of wealth, and give the roots of plants a chance to draw up its treasures and wave them, in the golden harvests. And the result of this mechanical disturbing of the soil, will not only give new pasture ground for the roots of plants, but will put the soil itself in a better condition to foster vegetation. The soil is loosened, and the air circulates freely, to the depth to which it has been disturbed. The air circulates there, charged with more or less of moisture, and moisture is also drawn up, by capillary attraction, from the earth beneath; so that the evils of summer drought are, in a great measure, guarded against. So, also, the excessive rains of spring, and the summer showers, do not flood the crops, and destroy them. A more abundant harvest is secured, and larger returns to the farmer's pocket. The scientific cultivator will increase the depth of his acres, just as he reduces their breadth, and grows rich by the operation.

He will economise *in manures*. He will make more of them, and of much better quality. The most valuable, and volatile part of them, that have been hitherto stolen away, by the sun, and the rain, will be retained, in his compost heap, by the free use of plaster of Paris, burnt clay, charcoal dust, or other carbonaceous matters. The muck and peat swamps, those rich mines of the farm, will be laid under contribution, to furnish the stables, the pens, and the yards, with suitable retainers of the gases, and salts of the animal excretia. There is no more wholesale waste, about our farming, than in the manure heap. Almost every one might double this, in quantity, without at all reducing its quality; while many might increase it ten fold. No farmer should be satisfied, or feel that he is cultivating his lands to the best advantage, until he makes his fifty half cords of manure, for every horse, cow or ox upon his farm. This is done by some who cultivate the soil, and could be done to good advantage, by every farmer, who has the necessary divisors upon his own premises. This would, in due time, furnish every acre of the farm, with abundant food for crops, and would be continually enriching the land, while it enriched the owner. Now many a farmer spends less than a fortnight in the preparation of manures, and his only manufactory is an open yard, giving free play to the sun, winds, and rain, and, perhaps, having a drain upon the lower side, to conduct its washings into the street, or the neighboring pond. With such a

system, it is no wonder that the farmer complains of hard times, and that the starved soil gives a starveling living, to its stupid cultivator.

Science, also, will enable him to economize in stocking his farm. It is the opinion of our best stock-farmers, that twenty-five per cent. can be added to the amount of milk, obtained from any given number of cows, simply by selection. The average yield of cows, in New England, through the entire year, is estimated at four quarts a day. A good selection, then, without a change of keep, or increase of care, will add three hundred and sixty-five quarts of milk to the annual yield; and ten dollars and ninety-five cents to the income of each cow, every penny of which, is profit. Some farmers keep fifty or sixty cows, and they would make a clear gain of five or six hundred dollars, per annum, over present profits, at the outlay of only a little judgment, if they only knew how to judge.

If the ordinary farmer gets his one hundred and fifty pounds of butter, from each cow, the educated farmer will get his two hundred. If there be a clear profit to the one, of two hundred dollars, from this branch of his business, there will be a clear profit of three hundred, to the other. This is equally true of every kind of stock, kept upon the farm, from that noblest of quadrupeds, the horse, to the most despised of bipeds, the more-plague-than-profit dunghill fowl. The farmer who knows how to select the best stock, and to reproduce them, in their perfection, will make each and all, large profitable. It costs but little more to raise a thorough-bred colt, than one, whose pedigree is as obscure as that of a Hottentot. The spirited, well-grown, and well-trained animal is worth a small fortune, in the market. The spiritless, awkward, ill-formed beast is dull of sale, at the purchaser's own price. Every creature of God will pay its way, just as it is well-cared for. And the same is true of all vegetation, that flourishes upon the farm or in the garden. Quite as much depends upon the selection of seeds, as upon the mode of cultivation, and the philosophy of the fact is obvious. It is with seeds, as with animals; some have a great deal more vital force in them, than others, of the same variety. Put a good seed into the same soil, with one that is weak in constitutional energy, and the former will more thoroughly appropriate the aliment within its reach, will obtain a larger size and mature more fruit, and that of a better quality. Feed the same quantity of grain to an ox in sound health, and to one whose digestive organs are diseased, and the one will lay on flesh and fat, while the other will waste, or at least gain nothing. Seeds are subject to disease, and

are as liable to propagate their disease, as animals. The preservation of early, large, and perfect seeds is no less important, than that of retaining the most thrifty, and best formed animals.

A gentleman, in Maryland, gathered the earliest and largest heads of wheat, from a field, and sowed them, gathering the best and earliest of their produce, and sowing again, and continued the process, three or four years. It now produces heads, that measure, with the beard, ten inches in length, five inches, at least, being covered with grain. This wheat is known by the name of Code wheat, taking the name of the gentleman, who had, by his pains, increased the quantity so much,

A gentleman in Essex county, went through with a similar process, with onion seed, until seed of his raising readily sold for four dollars a pound, while common seed was worth but fifty cents. The great improvement in the crop, from his seed, justified the cultivator, in paying this great price.

Many farmers are improving their corn crop, by the same method. A careful selection of perfect ears, from the stalks producing two or more ears, will improve the yield.

A gardener selected a single pod of six beans, from a lot of pole beans, called the Scipios, which usually have but four and five beans in a pod. The selected, true to the spirit of the age, produced not only pods with six beans, but some with seven and eight. These again were planted by themselves, and, this year, have produced pods with nine beans, with good promise of further enlargement. There is hardly a crop, grown on the farm, that cannot be greatly improved, by intelligent husbandry. The educated farmer understands this, and consults his own interest, in producing larger and better crops. In this single item, one may save enough, to make all the difference between a successful farmer, and one who fails in his business. Scientific agriculture is the only true economy of farmers. If they will secure this, they will secure their own fortunes.

We pass to consider its advantages to the community at large. The different classes of society are mutually dependent. Every useful occupation serves every member of society, directly, or indirectly. The agriculturist serves all classes directly. All are more dependent upon him, for the supply of their most pressing necessities, than upon any other calling. Every one is, at once, the patron and the dependant of the farmer. Whatever, then, affects his interests, affects the whole community. Make him prosperous, and every other interest prospers with him.

But, to be more specific, scientific agriculture is economical to society, *by adding to its general intelligence.* In the education, I have pointed out, there is a large amount of intellectual training. The tillers of the soil form a large majority of our population, and from the vastness and fertility of our territory, they always must be a majority. While we have free institutions, they must either rule the country, or suffer it to be ruled, through their political leaders. Elevate this class, by instructing them, in the science of their business, and you have changed the ruling influence of the country. Almost from the beginning of our government, farmers have been an immense political machine, in the hands of a few men of intelligence, and through this machine, the educated few have shaped the measures and policy of the government. Any demagogue, that knew enough to flatter their prejudices against wealth and aristocracy, and to call them the bold yeomanry, the bone and sinew of the country, has been enabled to crawl into power, and to use it for his own, rather than for his country's good. Educate this class in their business, and the reign of demagogues and political mountebanks will be over. The man who comprehends the difference in the staple that covers sheep, will be able to discriminate between the wool and the cotton of politicians. The man who rests his agricultural creed upon his own experience and knowledge, rather than that of his father, will not leave his political faith in the keeping of Jonathan Buncome, Esq., M. C. for his district. The policy of our national administrations will no longer be a shuttlecock between free trade and protection. A political economy for the farm, will be discovered, by clear-headed men, and will shape, uniformly, political action at Washington. Every interest of society is better cared for, and has more ample protection and patronage, from our government, than that of agriculture; and that, too, in the face of the fact, that farmers are the majority, own eighty-five per cent. of the property of the country, and contribute, directly, to the prosperity of all classes. Why do our ships of commerce, and our navy, any more need a secretary to care for them, than our farms? Why do our guns and fortifications need a government officer, to stand sentinel over them, more than our rich harvests, which are a thousand fold more exposed to plunder? If the government's gold needs a treasurer, to keep it, why should the wealth of the soil—gold in another shape, and a thousand times more valuable, —be left without a government guardian? This anomalous state of things, at our political metropolis, is beginning to awaken the attention of farmers, and must needs be reformed.

And not only will education give this class increasing *political influence*, but their influence will be increasingly felt, *in all social interests*. In any public improvement, this class have always been the last to be moved, the slowest to appreciate progress, in any thing, and the most reluctant to change. The man who finds little use for his mind, in the prosecution of his own business cannot be expected to appreciete the need of education for any other calling. If reading, writing, and ciphering, are the whole catalogue of studies that he has pursued, and these fit him for the use of the hoe and the plow, why should the merchant, mechanic, or any other man need any thing more? Why should we have schools, that give any higher intellectual furnishing? This has been the farmer's reasoning, for many generations past, and such reasoners are not all gone yet. But many have adopted more enlightened views, and begin to see, that, a man's brains are worth more than his hands, even in the cultivation of the soil, and will make the work of every hand, and every tool, upon the farm, more available. The man, who sees this for his own calling, will take liberal views of every other public interest. He will not grudge the extra dollar that is put upon the new school-house, will not despise the new seats, that have taken the place of the old oak planks, and the coat of paint that has eclipsed the wood color of the old clapboards. He has light enough to mourn over the defects of his own education, and willingly furnishes the means of instruction to the rising generation.

But there is a direct *pecuniary benefit* to society in scientific agriculture. It would bring cheaper food, and of much better quality, to every man's door. In the absence of famine, we forget that famine would now exist were it not for the improvement already affected by the application of science to agriculture. It is this alone which has enabled England to double her population, within a century. It is this alone, which enables us to keep so much of our population upon the sea-board, and which can keep it, against the strong competition of the new lands of the west.

What science has done for British agriculture, it can do for ours. There is no magic in great crops, and no miracles wrought in God's rain and sunshine. "He sendeth his rain upon the just, and upon the unjust." The man, that knows how to make his acres produce maximum crops, will get them, and he only. Providence will help those, who learn how to help themselves. There is a wide difference between good and bad husbandry, visible to all, who look at it.

There is a still greater difference between that which now prevails, and that which is attainable by all.

It is speaking far within bounds, to say, that the present agricultural population of Hampshire county, is capable of producing, from the same farms now cultivated, twice the amount of meat, and breadstuffs, now grown here. Many a farm, under improved husbandry, has increased its productions three and four fold. But, suppose the products of this county are only doubled by this process. The result is a gain to every member of the community, who consumes these products. The butter, cheese, beef, pork, and lard, which enter into the yearly bills of every family, would be furnished a little cheaper. The vast quantities of flour and grain, which now come to you from the West, might just as well be raised at your own doors, and be furnished at a cheaper rate. All these articles are increasing in price, from year to year, mainly because consumers increase faster than the agricultural skill of our farmers. Farmers, here, have long since ceased to supply eastern markets, and we have to import the deficiency from abroad, and pay a profit to the shippers and merchants, who stand between us and our producers. There is no remedy for this high price of provisions, but in a more skilful cultivation of the earth. This, then, clearly, would be a direct pecuniary advantage to all classes in society.

But there is yet another view of this subject, which, legitimately, belongs to the clerical profession for discussion. As you have honored this profession, as heretofore, in providing for your annual address, you will allow me to say, that the success of the cause, we are met to promote, is intimately connected with the religious prosperity of the country. I regard it as in the line of professional duty, as well as a personal gratification, to meet your call, and to advocate an interest, intimately connected with the welfare of the church, as well as of the state. It is generally conceded, that religion lies at the foundation of our social prosperity. The reaction of secular business upon religion is too generally overlooked. Stagnation, in the former, is incompatible with thrift, in the latter. A parish, where all earthly interests droop, where the husbandman, the mechanic, and the manufacturer, alike fail of success, is not likely to see piety increasing. The man that is nerveless and disheartened, in the prosecution of secular enterprises, will find it very difficult to be fervent in spirit, serving the Lord. In his straitened circumstances and poorly remu-

nerated toils, how hardly shall "he devise liberal things for Zion," whether at home or abroad.

There are parishes, in New England, once able and self-sustaining, now so impoverished, by lack of skill and enterprise in business, that they have lost the ability to support gospel institutions among them, without foreign aid. Whatever may be the moral disposition of the people, they lack the pecuniary means, to pay a minister's salary. That many, if not most of our rural parishes are waning, in numbers, wealth and influence, is generally conceded, by intelligent men, without any statistical knowledge of the fact. The most cursory observation shows it. The extent to which this decrease has gone on, would probably surprise any one, who has not had his attention particularly called to this subject. Even here, in the valley of the Connecticut, where you have the finest soil in New England, there are traces of this decay.

Taking the ten towns, lying around Amherst, and including in it, the towns most largely represented in your society, and there has been no important increase of population, for the last forty years, except where manufactures and trade have drawn population from abroad. Leverett only added nine to its population, from 1830 to 1850. Granby only added thirty-eight to its population, from 1820 to 1850, a period of thirty years. Sunderland only added seventy-three to its population, from 1840 to 1850. Belchertown only increased one hundred and twenty-six, during the same ten years. Pelham lost two hundred and ninety-five inhabitants, from 1820 to 1850, and Shutesbury, one hundred and seventeen in the same period. If in Amherst, Northampton, and South Hadley, there has been substantial increase of wealth and population, it is owing mainly to other causes.*

It is believed that there is no exception to this state of things, in

* The following table will show the changes in population, for the last forty years, in these towns :—

	1810.	1820.	1830.	1840.	1850.
Amherst,	1469	1917	2631	2550	3057
Belchertown,	2270	2426	2491	2554	2680
Granby,	850	1066	1064	971	1104
Hadley,	1247	1461	1686	1814	1986
Leverett,	769	857	939	875	948
Northampton,	2631	2854	3613	3750	5278
Pelham,	1185	1278	904	956	983
Shutesbury,	939	1029	986	987	912
South Hadley,	902	1047	1185	1458	2495
Sunderland,	551	597	666	719	792

any agricultural parish, in the commonwealth. Towns in other parts of the state, relying more exclusively upon agriculture, and having poorer soil to till, would show a greater decrease of population. There are many parishes, that have not the wealth, or population, they had fifty years ago. While the churches, in your manufacturing villages, have grown stronger, in most instances, the churches in the rural parishes, those landmarks of the olden time, have wasted.

To every good man, these examples of unthrift and decline are sad spectacles. They are contrary to the genius of Christianity, which not only makes the wilderness bud and blossom as the rose, but keeps the wilderness it has reclaimed, in perpetual luxuriance. The decline of our agricultural parishes is too often regarded as hopeless. Go into any of them, and converse with that class of farmers, who take no agricultural paper, and while they concede the fact, that their lands are less productive than formerly, they propose no remedy. Is there no help?

Certainly, it ought not to be so. For the right use of every thing, God has made, improves it; while man's works, only, wear out in the using. Mind improves by use, and is broken down, only by neglect or abuse. The soil is as much God's workmanship, as mind. Use it rightly, and it will not only never wear out, but always improve. There is no good reason why the soil should not every year increase in riches and in its capacity to produce aliment for man and beast.

The natural working of the soil, under the influence of light, heat, and moisture, secures this result. The decay of vegetation, on wild lands, every year, increases the mold and all those elements of fertility, which future generations of plants will require. It should be the office of human tillage, to increase the action of these natural agencies, and to hasten the process of amelioration. We should come to this conclusion, upon general principles, were there no science to demonstrate its truth. The soil would be an exception, among all the works of God, were it run down, by legitimate use. But agricultural science shows us, beyond all cavil, that good tillage, while it gives the amplest rewards, improves, most rapidly, the capacity of the soil for future usefulness.

If these principles are correct, it is quite manifest, that far the greater part of our husbandry is a flagrant abuse of one of God's gifts. It is wearing out the soil, and dissipating the inheritance of future generations, with reckless prodigality; and it is not merely a

physical evil, cursing the soil, but is playing the part of Turk and infidel, with our religious institutions. It is drawing away the life-blood from our agricultural parishes, those strongholds of Puritan faith and morals. It is only by keeping these parishes in vigorous, healthful life; vigorous in all the elements of temporal prosperity, that you can hand down the New England of to-day, and of the past, to future generations. The seed-plot of that prolific stock, which has so largely peopled the Union, and is now wielding the pick and the spade, so successfully, on the placers of the Pacific, is the New England farm. The work-shop, the counting-room, have not and cannot nurse such vigor and enterprise into being.

The farm is the best nursery for every other avocation. Who fill the positions of wealth and influence, in our centers of commerce? Who are our millionaires? Who stand unrivalled for eloquence, at the bar, and for statesmanship and diplomacy, in the high places of power? Who fill the pulpits of our land, or with the self-denial of primitive Christianity, preach Christ in lands, whither Paul and Barnabas never ventured? All these look to the farm, more than to any other one spot, as their birth-place, and the school of their early discipline. If the farm, then, is the fountain-head of that moral influence, which controls the land, and does so much to impress our institutions upon other tribes and nations, how important is it, that the best religious influences should surround the farm; that our rural population should have that moral and religious training, which will fit them for their future positions. This is clearly impossible, in the present condition of many of these parishes. In some of them, gospel institutions have died out, and, in others, they have but a sickly and starving existence. In none of them, is the pulpit and the school-room doing what they might do, with ampler means and scope, for their exercise. We can but feel, that they might accomplish far more for the characters that are moulding under their influence, if they had better opportunities to do their legitimate work. The prosperity and thrift, which an improved and intelligent husbandry would give, would supply the most pressing necessity of these parishes. They are so numerous, and form so large a share of our New England population, that the question is one of public importance, and demands the attention of every philanthropist and Christian. The remedy is not mere preaching or moral appliances, of any kind.

The poor wise men, in our pulpits, though more largely the benefactors of the public, than any other class, will find an evil here, that

the ethics of no school in theology will directly meet. Were their hearers

> "all ear
> And took in strains, that might create a soul
> Under the ribs of death,"

they could not make of them flourishing congregations. The souls are not there, to be converted. There is not capacity in the wretched husbandry that prevails, to sustain them, and make them energetic and thriving parishes, if they were converted. Religion corrects the maladies of the heart. It does not promise, directly, to remedy the defects of the mind, or to reform the bad results of a wrong mental training. Piety will not give a man the results of experience and business tact. It will not, directly, make a man a better farmer. But, finding a farmer, or mechanic, intelligent in his business, it will furnish him with new motives for its vigorous prosecution, and teach him to make a wiser use of his accumulations. There is a physical, rather than a moral cause, for many of these spiritual wastes, and waning parishes, in New England, and there must be corresponding appliances, to remedy the evil.

The one thing wanted, to renovate the soil, and to bring back prosperity to these parishes, is scientific agriculture. This will make husbandry as profitable as other callings, and will change it, from dull plodding and drudgery, to a business of intelligence and taste. The aspiring sons of our New England farmers, finding employment for mind, as well as muscle, in husbandry, can easily be retained at home, to improve and adorn this heritage of the pilgrims. This nursery of men and women for our country, and for the world, will be enabled to send out, still, the men and women the world needs.

The first results of this science will be the dissipation of the thick darkness, that broods over nearly all our farming communities. The husbandman, instead of being a stereotyped fixture in society, as he now is, will become a learner, like the men, who follow other pursuits. It may be said of this science, as was once said of higher truth, "The light shineth in darkness, and the darkness comprehendeth it not." So far as the large majority of this portion of the community are concerned, such men as Stephens, Johnston, Jackson, Norton, Teschmaker, Harris, and many others, write and talk to no purpose. There is no communication between them and the agricultural world, that so needs the truths they are bringing to light, and

clearly illustrating. There are comparatively few, that receive the benefit of their labors.

Not one farmer in five, takes an agricultural paper, and of the few items, that reach him, in the single column of his religious, political, or literary paper, he sees just enough to keep alive his inveterate prejudices against book-farming. They are too brief to give him the explanation of the results they record; and the great crops and high farming he reads of there, look to him like the stories of Sinbad, or the fictitious entertainments of the Arabian Knights! They will do very well to read about, but he is not fool enough to base his practice upon them. He was graduated a finished farmer at his majority; and whatever he expects to learn in politics or religion, he looks for no new ideas in the mode of husbandry!

Other men are learners in their callings. The lawyer, the physician, and the divine, all look for improvement in their professional work; and expect to be more learned advocates, more skilful practitioners, and better-read theologians and preachers, at the age of fifty than at thirty. The mechanic is wide awake to any new improvement in his art, and grasps with eagerness at every new idea, that will save him capital or labor.

Science has revolutionized most of these callings, and added thirty, sixty, or an hundred fold, to the products of capital and labor. But improvement is far from being universally the order of the day among farmers. There is, indeed, a change in some small circles, and we, who feel its impulse, forget the wide expanse beyond, that is still a breathless calm. County and State societies are formed; and a few public-spirited men, in them, are reaping the advantages of science; and are demonstrating to others, its utility and economy. But the mass of the people are not yet reached. They are not learners in the business of farming; and have a fixed horror of improvement, approaching to obstinacy.

But let science be once introduced into these communities; as now taught by the best agricultural papers and lecturers, in England, and in this country; and this darkness must be gradually dissipated. It will make of the present stereotyped farmer a learner. He will come out in a new edition of manhood; and open his eyes to the stolidity and misery of the present method of skinning, rather than cultivating the soil. All needed improvement will follow the new position of a learner, in the noble art of husbandry.

Science, with new light, will give a healthful excitement to these

communities, which are the most stagnant and hopeless, in the land. If there is too much mental excitement and pressure, in the city, there is too little, in the rural community, where the population feel that Nature has no secrets, and they have nothing to learn, in their daily pursuits. The mind demands excitement of some kind; and, if it cannot have that which is healthful, it will break over virtuous restraint, in pursuit of illicit gratifications. The young, especially, demand it; and if it is not to be found, within the quiet precincts of the old parish, they will rush for high life, in the city; for wild life, on the borders of civilization, at the West, or for gold life, on the placers of California.

A farming community, without the news, or the science of its daily business, is necessarily stagnant. It furnishes employment enough for the hands, but leaves the mind empty. Discouragement, discontent, vicious desires, rush in to fill the vacuum. The farmer overtasks his physical strength; and sees, after all his toil, little improvement in his farm, little in his stock, and still less in his fortune. He gains little beyond the annual support of his family; and often falls behind, and is harrassed with debt. He grows discouraged and unhappy, and changes his business, or emigrates to some new region.

A community, made up of men who are not thriving in their business, is not in a condition to help forward enterprises for the public good; or to be very much profited by the ministrations of the sanctuary. Every pastor, of much experience, knows, that the most hopeless of all communities, is that, where worldly enterprise in stagnant, and men's minds are filled with business perplexities.

But let science enter every farmer's dwelling, in the old parish, and it quickens the popular mind. Every body has a new idea,—a new crop to be cultivated, or a new method for growing an old one. Neighbors have now something to talk about, besides gossip, scandal, law-suits, and politics. Every man tries his experiment, and has his success, or failure, to relate. His success makes him an instructor. His failure makes him a learner. A new spirit is abroad, in the community; and brighter skies hang over the old parish, than ever cheered its inhabitants before. In such a state, a people are far more easily moulded, to any good purpose, than they could be in a state of stagnation and despondency.

Scientific agriculture *will greatly elevate the standard of mental culture*, in these parishes. It may seem invidious, to make any comparison between the rural population and that of cities and villages.

But any one, who has an acquaintance with both classes, and feels equally at home in either, has marked a difference. There is a much better acquaintance with men and books, in the latter, than in the former. The country has been drained of its most enterprising and intelligent population, to fill up the city.

As sure as we send our sons to the academy, and give them a taste of science, or of the classics, they are off to college, or away to the city. No sooner are our fair daughters returned from the seminary, than the young doctor, lawyer, or merchant, from the city, drops in, and the daughters drop out—of our society. The good pastor is called to give his blessing, and his farewell, to the most gifted and intelligent portion of his flock, every year. These new alliances with the city give it additional attractions over the country, and make the tide, which sets thither, continually stronger. Not every parish can endure this continued drain upon its vitality and intelligence, without feeling the loss. Every one must see, that a city population, thus formed, has a great advantage over that of the country, which parts with its most cultivated, and only keeps those who lack the enterprise to get away.

Now, the influences, that are bearing upon the respective classes, are calculated to widen the difference in intellectual culture. The regular morning paper, with its intelligence from all parts of the world; the evening lecture from the most accomplished scholars in the land; the close competition in business; the strife for professional success, which are the constant mental stimulus of the citizen, are altogether unknown to the rustic, who has but his weekly paper, or, what is very common in our farm-houses, no paper at all.

When science is recognized as an indispensable ally to good husbandry, the very business of the farmer will become a powerful stimulus to mental culture. He will no longer look upon his labor as purely mechanical, but he will be continually studying the philosophy of large crops, by the most economical methods. An acquaintance with many of the natural sciences will be found essential to the most profitable husbandry; and when it is once seen and felt, that the farmer, who best knows how to till the soil, succeeds the best, and makes the most money, all will be anxious to know how, and no ordinary obstacle will prevent them from learning. Farmers' sons will have a better education, to begin their business with, and the prosecution of their business will enrich their minds with knowledge, as it does their acres with the elements of fertility. They will study

chemistry and geology, in the compost-heap, and in the adaptation of manures to their various soils. They will study botany, in the growing of their crops; and entomology, in destroying the various insect depredators that rob them of the fruits of their toil.

There is no calling whose necessities demand a wider range of knowledge, and more research, than that of the husbandman. Agricultural science, as it penetrates these communities, will make these necessities felt, and mental culture will go on with the culture of the soil. The population of the old parish will become as intelligent as the best informed circles of the city, and will no longer send off the best of its youth, because there is no field for their enterprise at home.

Agricultural science, too, will make farming lucrative, and thus benefit the fortunes of our rural parishes. Husbandry is now poorly rewarded, because, and only because, it is not understood. When the farmer is drilled in the principles of his business, as thoroughly as the professional man, or the mechanic, he will succeed as well. This is already done in a multitude of cases. There are farmers in our own land, who clear their thousands of dollars, by the cultivation of their farms. Now what shall hinder other farmers, from doing likewise? Others have as good capacities, as those, who succeed so well. Let agricultural science shed its light upon the old parish, and the value of its acres will be at once enhanced. Its productiveness will soon be doubled, and prosperity will take up its abode in every dwelling.

Agricultural science, as it gives to our rural population, increasing intelligence and wealth, *will cultivate their taste for the beautiful in nature and art;* and benefit the old parish by making it attractive. The *beau ideal* of life, can never be realized in a city, or even in a village. The beautiful in nature, such as greeted the eyes of the first human pair, can find no congenial place there. There is not room enough for the grand old trees, on which time ever sheds a holier light; for the gardens, the orchards, the walks, the fountains, the shrubbery, and all the glad green things, in which a cultivated taste loves to embower its home. These things are only to be realized in the country. Nature has done much for the hills and valleys of New England. There may be here a perfection of physical adornment and moral culture, that can never be realized on the prairies.

There are indeed tasteful homes in the country, but they are mostly confined to the suburbs of cities and villages. They have been reared

by men who have gained their fortunes and formed their tastes under other influences than those of husbandry. A farm cottage, in New England, built by one who has been a farmer from his youth, and adorned with the appliances of taste, is even now a rare object. Few men, in these communities, have the means to gratify a taste for rural ornament, if it existed. They are obliged to study the strictest economy, in every thing, and have acquired a fixed habit of despising ornament. A man, who has a family to support, taxes to pay, and old age to provide for, is thought to be in poor business when he spends time and money merely to make his walls, fences, grounds, and buildings, look better. Many a house still stands, innocent of paint, though there is economy, as well as beauty, in it; unprotected by a single shade-tree, though there is health, as well as ornament, in its shade and foliage. The roadsides, in these communities, are rarely adorned with trees. The population have been too busy to think of them; or perhaps have feared the encroachment of their roots upon the adjoining fields. Even gardens for fruits and vegetables are sadly neglected, though they are so essential to health.

Agricultural science will also have a tendency to condense population upon a given territory, and thus to afford *greater facilities for the mental, moral, and religious cultivation* of the people. If the teachings of science are at all reliable, the present productiveness of the soil is no measure of its capacities to yield sustenance to man and beast. It is not extravagant to suppose that scientific husbandry would double the population of the old parish; and, at the same time, increase the wealth of individuals.

This is not mere conjecture, for improved husbandry has actually realized the density of population we have supposed. The kingdom of Belgium maintains a population three or four times more dense than that of New England; not because her soil is naturally richer, but because it is better cultivated. Scientific agriculture has made large portions of that country a garden. This density of population, with our thrift and civil and religious institutions, would give a perfection of human society, that has never yet been realized.

We have seen, in the discussion, that agricultural science will dissipate the darkness and ignorance, that now prevails in our rural districts, upon the subject of husbandry; that it will give a healthful excitement to communities now stagnant and monotonous; and prove in itself a means of intellectual culture, and by other means, will stimulate that culture; that it will make husbandry lucrative and

tasteful, and therefore attractive; and thus make the population of rural districts more dense, and afford increasing facilities for their mental and religious improvement.

If this is the tendency of agricultural science, I submit the question, if it does not afford the desired remedy for our waning rural parishes. And if there is a remedy here, entirely practicable, in its application, it becomes a matter of vital interest to the Christian and philanthropist to know the best means of disseminating this science. It is a question of life and death with many of these parishes.

Whatever may be said of the various appliances that have been suggested in this connexion, Farm Schools, State Institutions, Boards of Agriculture, Public Lectures, Agricultural Societies and Journals, the process of making good farmers, must, after all, be much like that of making good Christians. It depends quite as much upon example as upon precept. Show me any process that will establish two or three scientific farmers in each of the towns of New England, and I will show you a process that will renovate our whole system of farming. The principles of this science are already taught in some of our colleges, but so far as I am able to learn, there has been no very large attendance upon the lectures given in this department. And here I would venture to suggest, gentlemen, that county societies, like yours, could hardly make their influence more beneficially felt, than by encouraging a larger attendance upon these lectures. If you could send up annually to these instructions a few young farmers from each of the towns represented here, the happy results would soon be seen on all your broad acres. The great difficulty is, to get the few disciples of improved husbandry well taught, and then to distribute them through the land. They are to be found, already, in a few towns and districts, in sufficient numbers to work the needed reform in their several spheres of influence. There is a surplus of them around some favored cities and villages, where agricultural journals and fairs and good markets abound. Oh for some mighty persecution to arise, that would scatter them among Medes and Parthians, Elamites and Macedonians, so that every dweller upon our hillsides, and in our valleys, might hear, in his own tongue, and not far from his own fireside, the truths of Scientific Husbandry. Such a scattering of the truth would make converts to improved agriculture, more rapidly than any other process. But we are to look for no Pentecost, in our reformation, and must be content to make the best use of the means we now have, and secure better as soon as we

can command them. The farmers, who understand their business best, have usually selected their location with reference to a market; well knowing that this is a consideration of prime importance in their calling. We cannot look to them to forsake their own private enterprises, and become apostles of the mysteries of which they are the stewards,—at least, not until there is a better demand for their labors.

These model farmers of our suburban districts, are generally men of intelligence, and have studied the theory, as well as pursued the practice of their art. They have been the patrons of agricultural journals, not so much because they needed patronage, as that they felt the need of their recorded experience and instruction. Enter their sitting-rooms, if they do not chance to have libraries, and you will find there, upon the book-shelf or the center-table, some half dozen agricultural papers, and Liebig, Johnston, Norton, and Downing, as well thumbed authors. They are, to a man, those who read and think, who work with their brain, as well as with their hands. They are men who have done with the lore of their grandfathers, and are willing to learn. Where they see a well-attested improvement, in their art, they are ready to try it. They are frequenters and patrons of agricultural fairs—prominent among the contributors of stock, fruit, and vegetables. The process, that has made these men good farmers, will make every farmer excel in his business. Mere instruction has not given them their knowledge, but instruction and practice together. A perfect farmer must be, in a great measure, self-taught. It is by testing the principles, laid down in the books, that he will arrive at the best system of treatment for his own soil and climate.

I reckon, then, as among the best helps to an agricultural education, the agricultural journals of the day. The last five years has seen a great advance, both in their number and in their quality. As the repositories of the recorded experience of our best farmers, they are invaluable to every tiller of the soil. The local journal, devoted to his art, should especially be carefully studied, for it is adapted to his own soil and climate. No farmer can afford to do without these papers. They are as indispensable to his success as the manures he puts upon his soil, or the tools with which he works it. They are the best investment of capital a farmer can make. If well read and digested, the investment will pay better than any of his crops. They are now published so cheap, and the mails bring them to one's door so conveniently, that no farmer has an apology for not reading them.

Fairs, like this we have witnessed on this occasion, are also a help to the education of the husbandman. Not a man has come up hither, but will carry hence some new idea that will affect his next year's husbandry. Why should he not grow as fine stock and as fine fruit as any that has been shown at this festival? Has he not the same soil, the same rain and sunshine? If the knowing how is the only thing lacking, will not any live Yankee stir himself to gain the secret of large crops, of fine stock and fine fruits? One of the great advantages of these fairs is, that they show us what our neighbors have been doing. There is too little intercourse among farmers, and these occasions bring them together, not merely for holiday purposes, but to learn something new in their art.

Gentlemen of the Hampshire County Agricultural Society: I am happy to have met you on this occasion, and to have had this opportunity to plead a cause of common interest, to your calling and to mine. I have endeavored to point out the connection between scientific agriculture and your pecuniary success—the welfare of society and the prosperity of religion. Your cause is identified with the best interests of the state. A noble field of toil is open before you. Go on in your work, until your influence is felt in every town and on every farm, in the field of your toil; until improved husbandry is the motto of every farmer within your borders, and every waning parish shall regain its lost wealth and influence. Let these homes of your fathers—these nurseries of the Puritan stock—go down to your children, adorned with the thrift and beauty of high cultivation. Let each October, as it comes in the passing years, tinging the forests with purple, gold, and crimson, find its own glorious hues rivalled in the luscious fruits that crown your exhibitions. Let "the sere and yellow leaf" of your own life find you amid these noble toils, and your gathering to your fathers be within the dear old parish, and under the shadow of the sanctuary your labors have rescued from ruin and handed down to the future.

ESSAY

ON COMPOST MANURES.

BY L. WETHERELL.

Of all the numerous topics that concern the tillers of the soil—those who have entered into partnership with Nature, in order to multiply and increase the products of the earth upon which man and his various domestic animals are to subsist—there is none, perhaps, that more intimately relates to their prosperity, and ultimate success, as farmers and gardeners, than that which the Executive Committee of the Hampshire Agricultural Society proposed in their last annual Show-Bill for an essay, to wit, "Compost Manures."

Homer, who lived many hundred years before the Christian Era, mentions an old king who was found manuring his fields with his own hands. Whether this circumstance gave application of the word, manure, from *manus*, signifying the hand, does not belong to the essayist to determine, neither is it of any consequence in the present discussion, because every farmer as well understands the meaning of the word as now popularly used by writers and speakers, as he would, were the question of its etymological derivation settled beyond a query, by the most learned English or German philologist.

Compost, in agriculture, is a mixture or composition of various manurial substances for fertilizing land. Compost Manure may, therefore, consist, as it often does, of a mixture of vegetable and animal substances with lime or other earthy matter, substances, or compounds.

Before proceeding to the discussion of the subject under consideration, it may be well to review, briefly, its past history, in order that all who feel interested, may be able to mark the progress, made through a long series of ages.

We read concerning Adam, the progenitor of the human race, that after he was created, even before his lovely and loving consort was provided for him, that the Lord God planted a garden in Eden and there put He man whom He had created, for to dress and to keep it —thus implying, that a life of innocence, even, was not a life of indolence, nor idleness, but a life of activity. Eden's garden was to Adam a place of pleasure and delight, and yielded at first, no doubt, spontaneously, the cereals and fruits upon which man subsisted. This early account of the first man would seem clearly to demonstrate that his first employment was horticulture, a vocation, than which, none, even now, can be found more consonant with man's purity and innocence. What place, even now, in man's degeneracy, does he find more exquisite pleasure and delight than in a well-dressed and well-kept garden of beautiful flowers and delicious fruits? In order, therefore to enjoy this paradisiacal delight and pleasure, designed for man by his Creator, it is necessary that he should know how, not only, to dress and keep the "planted garden," but how, also, to restore and replenish its exhausted condition, caused by a successive cropping of fruits and grains and pulse. No virgin soil, however richly stored with the elements of plants, can long be annually cropped without becoming sterile and unproductive. Hence, it is fair to infer, that to dress and to keep the first garden, signified more than spading or ploughing, and cropping. As man multiplied upon, and replenished the earth, he would come to see, as the process of soil exhaustion was going on from year to year, as he observed the diminution of his harvest from season to season, that some mode of re-fertilization must be resorted to, or else he must frequently emigrate, and thus carry forward the sure work of impoverishing desolation, until every fruitful field should be converted into a desert waste.

Man, being both an observing and reflecting creature, would, most certainly, come to a knowledge of manurial specifics, such as would, if rightly applied, restore and even improve the original state of his garden or farm. Thus from history may this process be demonstrated. But in the course of time when the maximum of improvement in cultivating the soil should be attained, as in Egypt, the work of emigration would be as sure to go on, as under the exhaustive and minimum process.

Very little can be found concerning the modes of cultivating and fertilizing the field and garden until the dawn of Grecian history. It is said of Anjeas that he was first among the Greeks to discover the

use of manure. If so, it was probably subsequent to the time when he stipulated with Hercules to clean out his stable in one day, though it had not been done for 30 years, notwithstanding he is reputed to have kept 3000 oxen, and promised, if he would do so, to give him one-tenth of his cattle. This, Hercules is said to have done, not, however, after the way of modern times, but by turning the river Alpheus, through the stable, which immediately carried away the dung and filth. The condition of many a modern farmer's stable would remind one of the Augean stable. So let it be cleansed, as by water, so that none of the excrementatious matter, whether solid or liquid, shall be lost, but all so saved that it may be used to fertilize his gardens and fields whence comes his daily bread.

Zenophon, who lived about 450 years B. C. recommends the use of earth that has long been under water, as a fertilizer of the soil—so that the use of peat and mud from swamps and ponds, is no new discovery; he, also, recommended the growing of, and the ploughing in, of green leguminous crops as a manure, remarking that they "enrich the soil as much as dung."

Virgil, who lived about 70 years B. C. wrote concerning the advantages to be gained by a rotation in crops—recommended nitrum, not saltpetre, as many translate, but the carbonate of soda, or of potash, mixed with the dregs of oil as a preparation for swelling seed-grain before planting—suggesting the advantage of scattering ashes over exhausted soils, thus indicating no slight knowledge of the methods of artificial fertilization then known—speaking not only of ordinary manure, but of special manures, such as pumice, stone, shells, &c. Pliny, who wrote about 100 years later, says, "There are many kinds of manure and the thing itself is very ancient." Varro, one of the most learned men of Rome, who lived about 100 years B. C. was so minute in his enumeration of animal manures, as to mention the dung of blackbirds, thrushes, and other birds kept in aviaries. Cato, Theophrastus, and Columella, display a knowledge of compost manures that would be creditable to American farmers of the 18th century—occasionally throwing out suggestions that would do credit to a Massachusetts or New York farmer, even of the present day.

The Greeks and Romans very generally, at the commencement of the christian era, associated the ideas of successful husbandry with the careful accumulation of manures, and their liberal use. "They considered the application of manure, as one of the principal operations of agriculture, and placed it next to ploughing. They were so sensi-

ble of the advantages arising from the manuring of their fields, that they were very careful in finding out and collecting all such things as were found proper for the purpose. They carefully gathered the dung of their cattle—littered them with straw or stubble which they mixed with the droppings of the animals—collected all kinds of ashes—different kinds of earth—burned trees, shrubs and stubble in their fields for the ashes—and frequently sowed pulse—not cereal grains—to plough in as a green manure. "You may make manure," says Cato, "of stubbles, lupines, bean-stalks, oak-leaves, straw and chaff. From the wheat-field, pull out the dwarf elder, hemlock, the tall grass, and reeds in the willow plantations, and lay them below the cows and sheep." Says Columella, "I am not ignorant that there are some farms so stinted in the country, that neither the dung of cattle nor birds can be got. He is, however, a slothful husbandman, that, even under such circumstances, has no manure. For he may collect many kinds of leaves, the cuttings of briers and the rakings of the highways; he may cut ferns, which, though on the fields of his neighbor, will rather be an advantage than injury to him, and mix with the cleanings of the court-yard; he may dig a hollow place, and throw into it ashes, the dirt of the kennels, and jakes, all kinds of straw and everything that is swept from the house." Again he says, "I think those husbandmen are not diligent, who, from each of their lesser cattle in thirty days make not a load of dung, and from each of their larger cattle ten loads—and as many more from each of the men who may collect what they make, not only, but that which is produced daily by the court-yard and house."

Says Theophrastus, "Some advise to mix earths of different qualities—for example, light with heavy and heavy with light—fat with lean and lean with fat:—and in like manner, red and white and whatever has contrary qualities; because this mixture supplies, not only, what is wanting, but, also, renders the soil, with which another is mixed, more powerful, so that what is worn out, being mixed with a fertile kind of earth, begins again to carry crops as if renewed, and what is naturally barren as clay, if mixed, is rendered fruitful;—for one kind mixed with another, serves in some measure in the place of dung." "This suggested the idea of trenching, every fifth or sixth year," says Theophrastus, "by digging as deep as the rains penetrate, thus turning up the bottom mould by which the wheat-fields were renewed—and thus bringing up the virgin earth to take the place of that which had been partially exhausted by cropping." Columella,

also, mentions the practice of mixing earths of different qualities as having been performed with great success by his uncle a learned, skilful and industrious husbandman, who had thus enriched, both his wheat fields and his vineyards.

The present age boasts loudly of its progress and improvement over the past. How much improvement and advancement have the farmers of this 19th century made in the use of barnyard manure and the ordinary modes of composting, over that in use by the Grecians and Romans 2000 years ago? The preparation of poudrette from night-soil was known long ago to the Chinese. Ashes were used and preferred to barn-yard manure long since by the Britons, as well as by the Romans. In the early part of the middle ages, calcareous sand was used by the English farmers as a manure. Even sea-sand was employed as a fertilizer in the Counties of Devon and Cornwall, for the improvement of their arable lands. Carbonate of soda, or of potash we have seen from the history of the past, has been used in steeping seeds and as a fertilizer; and several kinds of saline substances and preparations have long been used in Briton, both, for preparing seeds, and as fertilizers. An agricultural writer 300 years ago made a record, that some farmers believed coleworts,—a species of cabbage,—grew best in salt ground, and, therefore, they employed salt as a manure—also, saltpetre and ashes. A writer near the close of the 17th century, says, "Rains and dews, cold and dry winters, with store of snow, I reckon equal to the richest manures, impregnated as they are, with celestial nitre; and I firmly believe that were saltpetre, I mean fictitious nitre, to be obtained in plenty, we should need but little other composts to meliorate our grounds."

A compound of lime and common salt, it is said, was recommended more than two hundred years ago by Glauber, a distinguished German chemist, in his hints on Agriculture, as most fit for dunging lands and to be used instead of animal excrements; and the same preparation was described and commended toward the close of the seventeenth century by Christopher Packe, as the cheapest of all mixtures for the enriching of poor and barren land.

Gypsum began to be used as a manure after the middle of the last century;—so, also, did fish, since when, they have been extensively employed. Guano, though universally used by the Peruvians as far back as their history extends, was not commercially introduced into England till 1840. So of crushed bones, and many of the artificial

specifics, used as manures, some of them being called composts, were not known until a recent period.

Having thus briefly sketched the history of the subject under consideration, it is time to proceed directly to its discussion.

Manure is defined, by Dr. Lieber, the author of a German Lexicon, to be "vegetable, animal and mineral matters, introduced into the soil to accelerate vegetation, and increase the production of crops." Loudon, in his work on Agriculture, says, "every species of matter, capable of promoting the growth of vegetables, may be considered as manure." Prof. Low, in his Elements of Agriculture, says, "all substances, which, when mixed with the matter of the soil, tend to fertilize it, are in common language, manures." Mr. Johnson, in his Farmers' Encyclopedia, says, a manure may be defined to be any fertilizing element, whether a compound, or simple ingredient, if added to a soil of which it is naturally deficient. In these definitions, Prof. Liebig and Dr. Dana, two modern writers on manurial specifics, agree.

Prof. Low classifies manures as follows: 1. Animal and Vegetable manures. 2. Mineral Manures. 3. Mixed Manures.

They are also classified into organic, inorganic, and mixed,—into animal, vegetable, and mineral,—nitrogenous, carbonaceous, saline, and earthy,—general and special,—natural and artificial,—simple and compound,—massive, powdery, and liquid,—diffused and concentrated,—volatile and fixed,—ephemeral and permanent,—chemical and mechanical,—top-dressings, incorporated and buried manures,—into such as contain the prepared food for plants, and such as resolve themselves by decomposition into the food of plants,—such as partly or wholly combine with ingredients in the soil, or the atmosphere, to form the food of plants,—such as absorb and store up their food from the atmosphere, such as eliminate their food from the soil, such as increase the absorption and nutrition of plants by stimulating or strengthening their organism,—such as increase their absorption and nutrition by improving the mechanical condition of the soil, and such as increase the vigor and luxuriance of plants by diminishing, modifying or destroying substances in the soil, which are injurious to their growth. These classifications, though from the nature of the subject, necessarily, very imperfect, serve, nevertheless, to aid the inquirer in gaining a knowledge of it, as well as the farmer and gardener in the practical work of preparing and furnishing plant nutrition.

The art of rightly applying manures to different soils and for the

promotion of the growth of different plants, as well as the neutralizing of noxious agencies, requires no small amount of careful observation, experience and skill. The herdsman that should feed his oxen with beans,—the shepherd that should fodder his sheep with rye-straw,—or the groom, that should feed his master's favorite horse on swamp-hay and onions, would be laughed to scorn by every body but the cockney. Yet worse blunders than these, are continually made by such as are called farmers. It is just as important, that the farmer and gardener should know how to feed their plants, as their animals. It is no more certain of your Indian corn, if it be only half fed, that you will gather only half a crop, than it is of your cow, if treated thus, that she will yield only half a mess of milk. So of your other crops and animals—they must all be fed with food precisely suited to their wants—such as is best adapted to promote growth and maturity. It would seem, then, if the farmer only knew how, he might prepare his ground here, for producing wheat or any other grain or product, suited to our climate, and, be almost as sure of a bountiful harvest, as of a seed time.

The combinations of matter that enter into the organization of plants, are almost infinite, though the original elements are few. Chemistry has discovered less than sixty elements in the material world, called simple substances, so named, because incapable of reduction. Of these, only four enter in any considerable degree into the formation of plants, viz., *Carbon*, which forms from forty to fifty per cent. by weight of plants cultivated for food;—*Oxygen*, forming nearly one-half of the crust of the globe, twenty-one per cent. of the atmosphere, eight of every nine pounds of water, and nearly one-half of the living organisms of plants and animals;—*Hydrogen*, the lightest of known substances, constituting one-ninth part of the weight of water, and entering but slightly into the composition of animal and vegetable bodies — and *Nitrogen*, constituting seventy-nine per cent. of the bulk of the atmosphere, constitutes a part of most animal and vegetable substances. Plants, then, being composed chiefly of carbon, oxygen, hydrogen and nitrogen, must be fed with these in due proportion, in order to produce a vigorous growth and an abundant harvest in return for the labor, skill and care of the husbandman. The carbon is derived from carbonic acid, the oxygen, from the atmosphere, hydrogen, from the decomposition of water, and nitrogen, from ammonia, absorbed by water and received by the plants through their rootlets. Earthy particles and salts are always present

in plants. In composting manures, the aim of him who engages in it, is, or should be, to provide food for plants by furnishing them with carbon and ammonia, materials found in great abundance in the decomposition of both vegetable and animal matter.

The food of man and his domestic animals depends, chiefly, both as to quantity, and quality, upon his skill and industry, as manifested in his coöperation with Nature in the production of such vegetables as are needed for growth and nutrition in the animal kingdom, such as are either immediately, or mediately dependent thereon.

It is a law of Nature, that the higher the grade of the animal and the more complicated its organism, the greater the necessity of a corresponding degree of food. Man is the noblest creature that God has made on the earth, and, consequently, has the most complicated and highly wrought organization of animated nature. How, or upon what shall man subsist? What does the best economy of his system require? A critical chemical analysis of his body, fed and nourished under the direction of knowledge reflected upon the subject by the light of physiology, will show its composition, and, therefore, demonstrate what elements the soil needs to produce bodily nutrition. Those elements will be found most important, as fertilizers of the soil, that enter most largely into the growth and maintenance of the human body. Man, in his present state, is both a herbivorous and carnivorous animal, being composed organically of all those elements that enter into the various organisms upon which he has subsisted, and still subsists.

The manures most common, are animal, green crops, peat, muck, mud, poudrette, bones, guano, fish and animals, refuse of factories,—wool, soot, ashes, lime, marl, phosphate, superphosphate, gypsum, salt, and other specifics and compounds, too numerous to mention.

Composting consists of mixing the different manurial substances—or, in other words, of converting the animal or stable manures into compost, by mixing them with some or all of the following, to wit, loam, peat, muck, pond-mud, cleanings of drains, wash of roads, leached ashes, using sandy loam, or marly clay, according to the nature of the soil where the compost is to be used. Into your compost heap, throw weeds before the seeds form, straw, litter, animal excretions, night-soil, the urine of the stables and all elsewhere that can be saved, the wash from sink-drain, the suds of a washing-day, and every thing else whose decomposition and fermentation furnishes

fertilizers for the soil, and which would otherwise render your premises filthy and stenchy.

Every farmer has ever-producing resources of some or all of these manurial substances, which he cannot well afford to lose, and which, if saved and composted, will enable him to make several cords more of manure than hitherto, every year, which will readily sell, if he has no land upon which he wishes to use it. Besides, he will keep his premises clean and free from offensive smells, indicative of bad economy not only, but of a very criminal disregard for health and comfort. There are many who call themselves farmers, that would consider themselves wronged if any one should question their claim to this noble title,—who claim to be great economists, yet have never learned the distinction between economy on the one hand, and stinginess and parsimoniousness on the other, having no claim to the former, yet possessing the latter in full exercise in all that pertains to the mental improvement of their families—that suffer filth and nastiness of every kind to accumulate about the "back door" and yard, being horribly offensive—with a drain, perhaps, from both hogsty and barnyard, pouring the liquid manure into the highway—a nuisance to every passer by.

The following directions for making compost manure are taken from Sprengel's late work on Manures. The right was patented in Germany:

"First take a layer of twenty inches in thickness of straw dung, or straw, dry leaves, weeds, potato stems, turf, muck, or marl. This is to be wet with dung-water, or common water, and covered with night-soil, poultry dung, street sweepings, pulverized bones, offal, kitchen slops, &c.

Next one-fourth of an inch of coal, or, wood ashes.

Then three inches of good earth mould or marl.

Then eighteen inches of horse, sheep, or cattle dung—wetting it again with urine or common water, then cover with a layer of pond mud, ditch scrapings, mould, muck, or marl.

Next one-fourth of an inch of coal, or wood ashes; and then a second course of straw dung, ashes, mould or marl, horse, sheep, or cattle dung, with a final covering of mud, muck, or marl. From two to three weeks in summer, and from four to six weeks in winter, are required for the fermentation. If in any part of the mass the heat be too great, it should again be covered with loam or mud, and wet with water. If any part does not ferment, holes are made, that the air

may reach these parts. When the mass is properly fermented, and the substances decomposed, it should be well wet with water, worked over, put up in heaps, from six to eight feet high, and covered with rich loam to the thickness of ten or twelve inches. After standing a few days, it may be carried to the fields and harrowed in with the grain, or ploughed in for other crops."

Farmers are not yet fully aware of the treasure they have in their peat swamps. Dr. Dana of Lowell has done more, perhaps, than any other scientific man to develop the value of these collections of decayed vegetable matter. Experience and science have taught the farmer how to use these vegetable deposits of manurial substances. To bring out the ammonia, the muck, whether peat or mud, must be fermented, which may be effected, either by the use of alkalies, or, composting with fresh stable manures. Take from fifteen to twenty bushels of ashes, or potash, ninety pounds, or soda, about sixty, to a ton of peat. Such a compost will contain about the same amount of ammonia as cow dung. One of the best methods of preparing peat, is, that of mixing it in the yard where cattle, sheep and hogs are confined. It thus becomes impregnated with the urine of the animals, much of which would, otherwise, be lost, and this renders the peat, as a fertilizer, equal to the solid excrements of these animals, for, in addition to the urine, it absorbs the leachings of the solid manures. Mr. Phinney of Lexington, says, that a load of green dung will convert two loads of peat, if well mixed, and make them equal in value, as a fertilizer, to itself, uncomposted,—i. e., one load of green dung, mixed with two loads of peat, will make three loads of compost, equal to three loads of green dung. It is said of a farmer in Watertown, that he makes no use of his green dung as a fertilizer, though he keeps a large stock of cattle. He sells it, and mixes the leached ashes, from his soap and candle factory, with peat, in proportion to one part of such ashes, to three of peat, thus keeping his farm in a high state of cultivation. He digs his peat in the fall, and in the spring, mixes the ashes with it by shoveling it over three or four times.

It is claimed by such as have experience, that peat should be taken from the swamp in the month of August or September, and suffered to lie through the winter,—and in the spring, it should be opened and mixed as aforesaid, one part of green dung to two of peat,—or of leached ashes, one to three;—unslacked lime may be used to accelerate fermentation. Composted thus, it will be ready for use in the

fall. Peat or muck for the hogyard, or barnyard, should, also, be taken from the swamp about six months before it is put into the yards. Pond mud, though not so rich in humus as peat, or muck, is a valuable fertilizer, its action being more immediate than that of unfermented peat, owing to its greater proportion of salts and silicates.

In the winter of 1839 and '40, Mr. Whalen of Saratoga Co., N. Y., took from a pond on a creek, one thousand loads of pond muck and put it on to a field of light sandy or gravelly soil, which had been thoroughly exhausted by cropping, until it produced nothing but sorrel and mullein. This muck was spread and ploughed in, and the field planted to corn, which yielded fifty bushels to the acre. The next winter, he took out seven hundred loads, and applied it to two other fields with similar results. He has also taken muck from an ash swamp with similar results. This mode of fertilization has caused these worn-out fields to produce good crops of oats and grass, as well as corn, where nothing scarcely grew before.

Every farmer should place swamp muck or peat,—and if he cannot obtain these, loam will do,—under his stable floors, to save the urine, most of which otherwise will be lost. Proper economy will enable many farmers that think they are very saving, to make double the manure every year that they now do. If the old maxim, "Money saved is as good as money earned," be true, then it is equally so, Manure saved is as good as manure bought.

It was recently stated in an agricultural journal, that the United States now import about two hundred thousand tons of guano annually, at an expense of $2,600,000, furnishing, probably, not more than one farmer in a hundred thousand with this costly fertilizer. To prevent this importation, as well as the necessity of the purchasing of superphosphate and other expensive artificial fertilizers, it is proposed that every family of four persons, shall, by the due exercise of the virtue of cleanliness within doors and about the immediate premises, make annually, or rather save what shall equal a ton of guano. Thus might two hundred thousand families save by skill and care, what now costs the country $2,600,000. Add to this what might be made by those who keep a cow, hog, and horse, with the poultry-yard, and you would have what would equal another ton for every family establishment. Thus might be saved, were this economy introduced throughout the United States, a quantity of manurial substance, equal to two hundred thousand tons of guano, which, at

$58 per ton, the price of guano, would equal $11,600,000,000 per annum.

Thus, it would seem, that, if every farmer and consumer of Earth's products would save all, by taking heed that nothing which can be used as a fertilizer of the tilled and cropped soil, be wasted, the necessity of importing manures or purchasing superphosphate, would soon be known, only, as connected with the history of bad economy. The sources of foreign manures are by no means inexhaustible—and, if resorted to, to any considerable extent, would soon be exhausted; besides, it is bad, exceedingly bad national policy to purchase of a foreign government, what care and attention might secure at home. He who suffers his crops to waste away, and return to the earth and air, whence they came, when ready to harvest, is not regarded, either, as a good, or provident husbandman. Neither should he be, who fails to save and compost and return to the field those elements necessary to feed, nourish, and promote the luxuriant growth and maturity of such plants as are cultivated and produced for the growth and sustenance of both man and beast. May this subject be duly considered by all, who are engaged in farming and gardening.

Having thus presented the subject of manures, composting, &c., it is hoped that the farmers of the Hampshire Agricultural Society will here find such facts and suggestions as shall serve to incite them to the exercise of greater diligence, economy and skill in saving, composting and applying specific manures. Manure is to plant-culture, what food is to your stock. Be as eager, then, to save and provide manure to feed your plants, as fodder and provender for your cattle and hogs. It is no more essential to your thrift and prosperity as a breeder of stock, that you should know how to feed your animals, so as to promote their most rapid growth and maturity, than it is that you should know how to cultivate and manure your land so as to secure the greatest possible return in crops for the capital and labor invested. In other words, it is as essential that you should know how to feed your plants, as your animals. Neither will grow and mature to perfection, unless rightly fed and nourished. Both the quantity and quality of what the farmer and his domestic animals subsist upon, from his tilled acres, will depend chiefly upon his skill as a husbandman.

In order to compass the end that every good farmer should have in view, to wit, to secure the greatest possible return for labor and capital invested in farming, he should read and study carefully the

best written treatises on agriculture—read the most intelligibly conducted agricultural journals,—converse with his neighbor farmers, such as are actively engaged in improving their soils—such as produce the largest crops, the best cattle, the finest and fleetest horses, the most profitable sheep, the most desirable breed of hogs, the choicest varieties of the different species of poultry, &c. &c. ;—also concerning the best and most economical methods of farm management, including the implements, so as to be able to select the best kind of plough, seed-planter, cultivator, mowing-machine, horse-rake, &c.; also, to learn the art of ploughing different soils, whether deep or shallow—whether it is cheaper to use oxen or horses, as a team :—the mode of seeding with grain—when—and whether it be better to sow grass seed in the fall or spring—how to save, mix, compost, and multiply manures, so as to produce the greatest possible amount from the materials employed—ascertain how to use them on the soil to the best advantage ;—in the rotation of crops, learn whether it be better to take two crops of corn in succession from the same field, than one, how to employ all labor-saving machines, so called, in order to cheapen labor by gaining, or saving time ; also, to learn something every season by careful and intelligent experimenting and observation—so that his growth in knowledge, experience and wisdom in his noble vocation, shall more than keep pace with the progress and improvement, annually developed in the skilful management of his farm. Then will farming pay, not only, but will become, also, a source of pleasure and delight, akin to that enjoyed in horticulture, before man received the sentence, "In the sweat of thy brow shalt thou eat bread." The hand, when guided by a well instructed mind and pure taste,—all under the influence and promptings of a good heart, will so beautify the farm acres, as to render every Farmer's Home a fit dwelling-place for Nature's truest nobleman, the FARMER.

Reports of Committees.

REPORT ON FARMS.

BY PROFESSOR J. A. NASH.

The committee report that entries for premiums have been made by Austin Smith and Sons, of Sunderland, and by Theophilus P. Huntington, Wm. P. Dickinson, and Royal W. Smith of Hadley.

The committee visited the farms of these gentlemen as directed by the rules of the Society; and we take pleasure in saying here, that the hospitality with which we have been received, has been such as to induce the hearty wish that we had as many premiums to award as there have been entries made, so that none of our friends need go unrewarded.

We find, however, that there are but two premiums, one of $20, and the other of $10. The first of these we have awarded to Austin Smith and Sons, of Sunderland, and we are confident that a discerning public will find reasons for our so doing in the accompanying statement of these gentlemen. So far we found plain sailing, and if that course had brought us into harbor, we should have been glad, but there were competitors from Hadley, all of whom exhibited good farming, and so equally good that it was difficult to discriminate in favor of either against the others. In the farm management of Mr. Huntington and in that of Wm. P. Dickinson we saw much to commend. These men have exhibited the right spirit, and, so far as we can judge, the right practice with regard to the reclaiming of waste lands. Our region of country would soon be more beautiful and more productive, and, though now healthy, would be still more conducive to health and long life, if all owners of lands would farm them

as well. Both in the reclaiming of swamp land and in the cropping of their lands generally, they have done well. Their practice proves farming to be a paying business, more profitable than any other business equally safe. Between them as compared with each other, and when both were brought into competition with Mr. R. W. Smith, the question was one which it seemed almost impossible to decide. Your committee, however, believed that Mr. Smith's farm management was quite as good as theirs, and his statement was somewhat full, conforming more nearly than theirs with the conditions on which these premiums were offered, which two considerations taken together, induced them to award the second premium to Royal W. Smith of Hadley, unless Mr. Huntington, whose farming we much approve, but whose statement was very deficient, will consent to make out a new and more full statement, one that shall be satisfactory to the Executive Committee, in which case we award the second premium to him.

We do not understand that the rules of the Society require *long* statements. It is, however, to be supposed that the man who takes your premiums for good farm management, is a *good* farmer, that his example is worth considering, at least, if not worthy in all respects of imitation; and if so, then it is incumbent on the competitor to make such a statement as would enable other farmers to comprehend his proceedings and to imitate them if they choose. We specially commend that part of Mr. R. W. Smith's statement, which relates to the composting of manure for his corn.

STATEMENT OF AUSTIN SMITH & SONS.

The Farm which we have entered for premium consists of sixty-four acres, situated in Sunderland, twenty-six acres being contained in the homestead, and thirty-eight acres in the two meadows in town.

The greater proportion of the soil is a sandy loam, the remainder a clayey loam.

Fences are dispensed with, except on twenty acres of the homestead, the remainder being employed in cultivating, in rotation, the various crops raised upon the farm.

During the present year, our farm has been cultivated, as follows: twenty-four acres in grass; fifteen in broomcorn; thirteen in Indian corn; three in wheat; four in rye; two and one-half in oats, and one half acre in potatoes.

It has been our aim to labor for the improvement of the farm, rather, than the largest possible present crop. This we endeavor to

do, by thorough cultivation, and a continual effort to increase the amount of manure made on the premises. We have made and applied, the present season, five hundred and fifty loads of barnyard and compost manure, of thirty bushels each; and have, besides, purchased and applied two hundred bushels of ashes, seven hundred pounds of guano, ten bags of superphosphate of lime, and one ton of gypsum; from each of which we have observed very satisfactory results, with the exception of the guano. The ashes and superphosphate of lime were principally put in the hill, at time of planting; the ashes, for corn—the lime, for broomcorn.

Our barnyard and compost manures, we apply at planting time, harrowing in that which is well rotted, and plowing in the coarse. The manure from the horse stables is thrown into the hogyard, and, with a frequent addition of muck or loam, a large quantity of excellent manure is made. Our winter-made manure is applied almost wholly in the spring; our practice in this respect having undergone an entire change within a few years.

We seed down to grass by four methods, according to circumstances. By hoeing in seed, at the last hoeing of Indian corn; by sowing at time of sowing oats in the spring; by harrowing in, where rye was sowed the autumn previous; and by turning over the turf on wet land, in August, and harrowing in a liberal coat of compost manure.

Our team work is done principally with horses, some pieces of our land being from one to two miles from home.

We have fattened twenty swine during the past year, making forty-five cwt. of pork, feeding upon milk and slops from the house, pumpkins, refuse apples, soft corn, &c., and fattening upon meal, ground from a mixture of three parts of broomseed and two of corn.

The crops raised on our farm, are consumed entirely at home, except the broomcorn brush.

The amount of the products of the farm, for the present year, is derived, considerably, from estimates made by a comparison with the known produce of previous years.

The price of produce we have endeavored to fix, at what it would realize, if sold on the farm. The broom-brush having been sold, we put accordingly.

We have included, in the item for labor, the estimated value of our own and the expense of hired labor with the addition of board. We have considered that nothing is lost in employing so much help, as to have farm work thoroughly done, and the various crops cultivated and gathered at the proper season.

PRODUCTS OF THE FARM.

715 bushels of corn, at $1, ...	$715 00
12,000 pounds of broomcorn brush, at 9 cents,	1080 00
1050 bushels of broomcorn seed, at 40 cents,	420 00
37 " wheat, $2 25, . . .	83 25

90 bushels of rye, at $1 17,	105 30	
95 " rye and oats, at 75 cents,	71 25	
80 " potatoes, at 50 cents,	40 00	
40 tons of hay, at $12,	480 00	
30 " corn stover, at $6,	180 00	
3 1-2 " wheat and oat straw, at $6,	21 00	
3 " rye straw, at $5,	15 00	
50 bushels of apples, at 50 cents,	25 00	
30 " " at 17 cents,	5 10	
200 dozen eggs, at 17 cents,	34 00	
20 loads of pumpkins, at $1,	20 00	
550 loads of manure, at $1,	550 00	
Improvement of Farm,	100 00	
		$3944 90

EXPENSES.

Our own and hired labor,	$869 00	
Grass seed,	1 00	
Seed corn, rye, wheat, &c.,	10 00	
200 bushels of ashes, at 20 cents,	40 00	
1 ton of gypsum,	11 00	
Superphosphate of Lime,	45 00	
Guano,	20 00	
550 loads of manure,	550 00	
Interest on land, at $100 per acre,	384 00	
Taxes on the same,	25 60	
		$1965 60
Net profit on 62 acres,		$1979 32
Do. on 1 acre,		31 90

Sunderland, Oct. 9, 1854.

STATEMENT OF T. P. HUNTINGTON.

My farm, lying on the Connecticut river in Hadley, contains forty-four acres, exclusive of a small wood lot on Mt. Warner, nearly two miles distant. My homestead contains ten acres of the first quality naturally, but this land gives much better returns with manure than without. Sixteen acres, further back, are well adapted to grass, but the greater part is rather low for corn. Of the remaining eighteen acres, ten are occasionally tilled for rye—though made of no account in this statement—and eight have been left for a few years to Nature, in part being covered with a beautiful growth of valuable trees.

In considering the improvement upon the farm, as required of competitors in the Hampshire Society's list of premiums, I trust I shall be excused, if, instead of including five years, I commence still farther back, say fifteen years, when the buildings were all new, the

ground comparatively bare of trees, and a considerable debt was incurred.

My main object at that time, was to clear off the debt. The shortest way to effect this was adopted, viz; selling the produce, hay and grain, keeping as little stock as possible, and giving my labor to others, either in the way of day's works or by taking land to till on shares, so that I could raise corn for market without furnishing manure.

The matter of the debt being disposed of in the course of eight or ten years, some improvement being made at the same time about the buildings, in the way of painting, fencing, and setting fruit and ornamental trees, a little land added, the farm stocked and farming implements purchased; I began to turn my attention to the improvement of the farm, my object being not so much to make the land rich, as to get the surface smooth and into a fit state for *comfortable* culture. The result, except with the sandy land, is entirely satisfactory to myself, and I presume to flatter myself, that your committee would acknowledge no small improvement, had they seen the ground eight years ago. Others are ready to testify to the facts, though I say it not boastingly.

In commencing this general improvement, my plan was to take a portion yearly of the ten acres of sandy land, and a portion of the sixteen acres of low ground, and so to manage by draining, ploughing, manuring and seeding, as to not only make it pay in the way of crops, but to improve the value and the appearance of the whole, in a series of years.

Upon the sandy hill I prepared large heaps of muck from the low ground, mixed with manure; sometimes ploughing in this compost, sometimes harrowing it in without any perceptible difference in the result; sometimes planting Indian corn, sometimes broom corn, and some years white beans; each followed with rye and clover seed. For want of sufficient manure made upon the farm to carry out the experiment faithfully, I have been obliged to rob other fields of their portion of manure, or purchase it a mile distant. The crops I think have not paid for the labor and manure; the clover, if perchance it germinates, rarely survives the first summer's sun and then gives place to a luxuriant growth of sorrel, and the soil is as poor as when I commenced. Thus I consider my experiment with the sandy hill a failure, so far as the permanent improvement of the soil is concerned, and I must look to others for instruction in the matter, for with me it has been, in more than one sense of the word, an *up hill* business.

In the use of the low ground, as I have said, the result has been satisfactory. I have made it a point to have the land before ploughing, thoroughly drained, making deep drains to cut off the springs, and covering them, when the quantity of water was not too great to be carried off readily. These covered drains are made by laying two large rails at the bottom of the ditch, one on each side, far enough apart to allow a water course between them, and a third in the middle, resting upon the two and keeping them apart. Another may

be laid on each side and the whole covered first with a little straw, then sods inverted, and the upper part filled with finer earth. In this way I have made within a few years about seventy-five rods which do well. After these, deep main drains were properly made, all unnecessary ditches were filled, and then the land was ready for the plough. I ploughed, for corn, turf land in autumn, about seven inches deep, and prepared at the same time—if possible—a pile of compost manure of thirty-one horse-cart loads for each acre, to be applied in the Spring and harrowed in. The ground being planted with corn and kept even, I have succeeded in getting good grass by sowing seed among the corn and working it in in August. Sometimes I give the land a second ploughing and seed down with oats.

In this way I have been over the sixteen acres, draining, planting, and seeding. The last piece of rough, low, unproductive ground has been made smooth and I trust will prove to be productive by a different process, a plan recommended by Mr. Buckminster of the Massachusetts Ploughman; that of seeding immediately upon the inverted sod, which cannot be too highly recommended for low ground. As your committee saw this ground, before and after the operation, it is needless for me to enlarge upon it.

While I have been engaged in carrying out these principal objects, I have been constantly experimenting on a small scale for my own benefit; but, if it will be proper here and of any use to others, I will mention some, which, although they may not have been made with that exactness which might be desirable, yet are satisfactory to me. Some of the experiments have already been mentioned, and I may add that my experiment in subsoiling—though cattle-show orators may keep telling us to plough deep, that we have strata of farms (no one knows how many) underneath those we now till—has not been the most flattering. I have no doubt that subsoiling upland, the present year, would have operated well; but, in ordinary seasons, low lands deeply ploughed retain too much moisture, which retards the ripening of the crop.

Ploughing in buckwheat or Indian corn to enrich sandy land, I am satisfied is a long process. Salt to kill worms, and oyster-shell lime to cut up moss and make corn grow, may answer in some locations, but something else, or perhaps nothing is better. Guano harrowed in for corn, has been dear manure to me. Many think there is economy in boiling sour apples for hogs, but sour meal and milk make sweet pork fast enough.

I have been in the habit of keeping a good supply of earth during the summer months in the bottom of the barn-yard, stable, hog-pen, privy, and sink hole, to absorb the valuable liquid and with the manure to be harrowed in for corn. The winter made manure is ploughed in on corn-stalk or stubble land. I never mean to allow the air to become impure about the buildings from the waste of fertilizing matter, but have earth at hand to cover every foul spot; thus having the comfort of a wholesome atmosphere, and at the same time saving food for crops.

I have raised very little stock during the last five years, though I have now five very promising yearlings of my own raising. The main objection to raising stock in my vicinity being the want of good pastures. The produce of the farm, besides supporting the family, is principally fed to cows and hogs. The amount of butter made last year was seven hundred and twenty-five pounds. One yoke of oxen fattened and twenty-four hundred pounds of pork. I usually employ a boy seven months in the year—besides myself—or a man half that time. As to farming implements, I mean to keep along with the times as near as the circumstances of a small farm will seem to authorize. Going a little further in this matter within the last ten years, I succeeded at last in getting three acres of grass cut at the very moderate sum of fifteen dollars—five dollars per acre.

I am not aware of much improvement in the way of rail fences, unless it is in laying them up in snug piles or upon the barn beams for scaffolding.

One framed building has been added to the place within the last five years, and paint and paper to the amount of some $80. The paint upon the house being yet good, it received last week a covering of oil, merely to preserve the paint and thus the timber. This is mentioned only as an item in the "economy of farm management," as the expense did not exceed five dollars, whereas a coat of paint two years hence would have probably cost thirty.

Some sixty or more young fruit trees about the buildings, of different kinds, merely for family use, constitute the orchard, except fifteen or twenty older ones scattered upon the farm.

The income of the farm, or the produce of the present year at the market prices, with the expenses, will stand, I suppose, nearly as follows:

PRODUCTS.

Hay, estimated at 18 tons, at $12 50 per ton,	$225 00
330 bushels of ears of Indian corn, at 50 cents,	165 00
4 tons of corn stover, at $5 per ton,	20 00
1200 pounds of husks, at 75 cents per cwt.,	9 00
Broombrush from 3 acres, estimated at 1 ton, at 10c.,	200 00
150 bushels broom-seed from 3 acres, at 2s.,	50 00
3 acres of oats, estimated at 100 bushels, at 60c.,	60 00
Oat straw from 3 acres, estimated at 2 tons, at $5,	10 00
40 bushels good Carter potatoes, at 75 cents,	30 00
20 bushels small, " at 25 cents,	5 00
7 bushels early potatoes, at $1,	7 00
8 bushels peach-blow potatoes, at 50 cents,	4 00
15 bushels buckwheat, at $1,	15 00
Green peas, sold 10 bushels,	10 00
5 bushels of wheat, at $2,	10 00
Turnips, 30 bushels, at 2 shillings,	10 00
Rowen, pasturage, and fall feed, estimated at	25 00
10 barrels picked apples, at $1,	10 00

12 barrels wind-falls, at 60 cents, . . .	7 20	
20 bushels cider apples, at 10 cents, . .	2 00	
		$874 20

EXPENSES.

Manure, including guano, $93, say one-half spent this year, ...	$46 50	
Labor by self, 8 months, at $30, . . .	240 00	
Labor by son 12 years of age, 6 months, at $10,	60 00	
Use of horse, wagons, and tools, . . .	53 50	
		$499 00
Profit, including interest and taxes, . .		$474 20

Hadley, Oct. 31, 1854.

STATEMENT OF R. WALES SMITH.

The farm, which I enter for premium, is in Hadley and contains eighty-five acres. It is divided as follows: thirty-nine acres of pasture, twenty acres of mowing, ten acres of tillage, and sixteen acres of woodland. I have, within five years last past, reclaimed twenty acres, which were formerly overrun with bushes and stumps, which cost me at the outset ten dollars an acre. This lot is now under a high state of cultivation, and is worth fifty dollars per acre. This improvement was accomplished, without any outlay of money, and principally by my own labor. I have practiced deep plowing, usually from seven to ten inches. Ten acres of the soil is a yellow loam underlaid with hard gravel, and the remainder is a clay soil.

During nine or ten years past, I have composted manure, and find it equal to yard manure, and better for corn. I usually make fifty loads of compost. I draw twenty-five loads of muck to my corn-field in the fall. About the first of April following, I draw out to this muck-heap twenty loads of barnyard manure. I add five hundred pounds of plaster and fifty bushels of oyster-shell lime. As soon as the frost is out of the ground, I mix these ingredients. When the compost heap begins to warm, I pitch it over to prevent burning. The manure will be well rotted and fermented and fit for use by the time it is wanted for planting. I have never failed of a good corn crop with this manure. I compost all my manure and usually make from two hundred and fifty to three hundred and fifty loads annually.

I till about fifty acres in nine years, breaking up five acres of sward land each year. My system of rotation is, first a corn crop, then oats, and lastly, grass. I raise enough potatoes for my own use, and very little rye.

My farm is usually stocked with twenty head of cattle in the winter, of which about one-third are fattened and sold in the spring.

My hay and grain are fed out to cattle on the place; but my dairy

products, annually sold in market, average not less than five hundred pounds of cheese and two hundred and fifty pounds of butter.

During the present year, I have cultivated six acres in corn and potatoes and four acres in oats, and mowed twenty acres. The labor has been wholly performed by myself, except for sixteen days in the hay season, when I hired a man to assist me.

PRODUCTS.

30 tons of hay, at $12 50,	$375 00	
5 acres of grass, sold at $11 50.	57 50	
250 bushels of corn, at $1,	250 00	
150 " of oats, at 62 1-2 cents,	93 75	
Pasturage of 13 horned cattle, 26 weeks, at 33 1-3c.,	112 66	
25 bushels of potatoes, at 50 cents,	12 50	
20 " of apples, at 50 cents,	10 00	
527 pounds of cheese, at 10 cents,	52 70	
250 pounds of butter, at 20 cents,	50 00	
10 tons of corn fodder, at $5,	50 00	
2 tons of oat straw, at $5,	10 00	
250 loads of compost manure,	250 00	
		$1324 11

EXPENDITURES.

My own labor, 225 days,	$225 00	
Hired man 16 days in hay-time,	20 00	
Grass seed,	6 00	
Seed corn, 1 bushel,	1 00	
Seed oats, 10 bushels, at 62 1-2 cents,	6 25	
Seed potatoes, 2 bushels, at 50 cents,	1 00	
1000 pounds of plaster,	4 50	
75 bushels of oyster-shell lime,	12 00	
250 loads of compost manure,	250 00	
Interest on 69 acres tillage and mowing, at $50,	207 00	
Taxes,	27 00	
		$759 75
Net profit,		$564 36

Hadley, Oct. 4, 1854.

REPORT ON RECLAIMED SWAMPS.

BY HON. JOSEPH SMITH.

It is peculiarly fortunate, when the performance of a particular duty harmonizes with the tastes of those, who have to fulfil it. For then the mind, instead of dragging the slow length of its ideas along, moves with alacrity, and imparts to others a portion, at least, of the satisfaction which itself enjoys.

Such is the happy position of the Committee. Mere swamps had been cold, wet and dreary, but that word, *reclaimed*, not merely made our duty less irksome, but rendered it positively delightful. The idea of reclaiming any thing, quickens the pulsation of every generous heart, because it presupposes a downward career, and a tendency to the region of hopelessness; and to be instrumental in the extrication of any thing spiritual, animal or vegetable from this dark abode, this mournful fate, must afford satisfaction to any one possessed of right feeling. The sensation of rescuing from hopelessness and restoring to utility, can be no other than a pleasing one. Is it nothing to make the barren womb of earth to rejoice, by causing it to be the fruitful mother of abundant produce? We have authority, which it would be impious to question, that there is more joy in heaven over one sinner, that repenteth, than over ninety and nine just persons, that need no repentance. May we not reverentially adopt this heaven-born sentiment, and, in the appropriation of it to our worldly affinities, venture to feel that there is more joy, not only in making two blades of grass grow where one grew before, but also in making one grow, where none grew before; than there is in beholding the vast, immeasurable extent of indigenous vegetation, however luxuriant, that clothes the western prairie?

It is gratifying to observe the progress, made for some time past in reclaiming waste and swamp lands. In the ten years, between 1840 and 1850, not less than two hundred and thirty-nine thousand nine hundred and eighty-seven acres were reclaimed and made productive throughout this State. The pasture land has been turned into mowing and tillage, and the unimproved land, into pasturage or tillage.

The profit arising from reclaimed land, is said to be, on an average, fifty per cent.; in some cases, it is very large; and lands so reclaim-

ed have become the best parts of the farms, yielding, in general, two good crops of first quality hay in a season.

A writer from Hampshire county, who is quoted by the Secretary of the State Board of Agriculture, in his first annual Report, gives the following process of reclaiming poor, worthless swamp lands:

In the first place, says he, we drain them as dry as we can conveniently; and, then, we cut the surface over as even as possible; and in some cases we plough and level it. Then we draw on sand or gravel, at the rate of about a cart-load to a square rod of ground, and then cart on fifteen or twenty loads of good manure to the acre, and spread evenly over the ground, and then harrow it thoroughly. After that, sow to herdsgrass, clover and red-top seed. The latter part of August is considered the best time for seeding, but it will do very well, later in the season.

STATEMENT OF SAMUEL POWERS.

My piece of reclaimed swamp contains five acres, and it is situated on the county road, leading from Hadley to Amherst, at the foot of the hill, about half a mile from the former place.

In 1837, I became the owner of the above land in connection with twenty acres, a part of which was improved land, and worth what the whole cost, leaving the portion I am about to offer for consideration, in its then condition of little or no value. This worthless part first engaged my attention. Its soil is of that peculiar kind, called peat, and is the product of accumulated vegetable matter. I resolved, if it were a practicable thing, to put it in a fit condition for cultivation, and, on taking its water level, I found that in a distance of sixty rods, there was a fall of about two feet. This fact encouraged me to make the attempt to free it entirely of water. I cut a ditch, three feet in depth, at the foot of the hill, which carried off the water which the springs gushing from the hill sent forth. In addition to this, other ditches of equal dimensions were dug, encircling the entire piece, and one also through the centre. These ditches evacuated the swamp of water. After the land had remained in this condition one year, I proceeded to plow it with a team consisting of three yokes of oxen, attended by three stout men to guide the plow and turn the furrows. Three days were consumed in plowing one acre; at an expense of twelve dollars. But the work was effectually done, the heavy swamp sods being turned over and buried eighteen inches deep, after clearing the surface of the many roots and logs scattered over it. A drag and heavy cultivator were next applied, which gave the before rough swamp a smooth and level surface. The following spring, a smaller plow, drawn by a pair of horses, turned over the surface, not disturb-

ing the thick turf, covered over the year before. I first planted to potatoes, and obtained a large crop; second year, planted Indian corn and had an abundant crop; third year, planted broomcorn, and had an abundant crop. In looking over my minutes of the income derived during the three first years of its improvement—after making a fair deduction of all expenses for manure and labor—I find that my receipts exceed the expenditure over eighty dollars.

Since that time, a period of fourteen years, the land has been constantly planted to broomcorn, and has produced crops equal in value to the *best meadow soils*, while only about five loads of manure were used to the acre, and applied in the hill, which has kept it in a good state of cultivation. It yields as good crops and is as beautiful in appearance and as productive as any land in the vicinity.

Hadley, Oct. 17, 1854.

STATEMENT OF JOHN A. MORTON.

My piece of meadow land contains one and a half acres. The soil is in part peat mud and inpart a clayey subsoil. It lay in pasture, covered with brush, coarse grass, and water. In the fall of 1851, I ploughed the lot in which this land lies, to the depth of seven inches. I then cut drains around the wet part, the ditches running north and south about two rods apart, the fall being sufficient to carry off the water. I planted it to corn in the spring of 1852, manured in the hill with ten loads to the acre, and the yield was thirty bushels to the acre. In the spring of 1853, I ploughed in fifteen loads of sheep manure to the acre, and again planted to corn with ten loads of compost manure in the hill. The corn grew large and was considerably injured by the wind in August. The ground being soft, the corn was turned out by the roots. I raised over fifty bushels of corn per acre. I sowed the piece to oats, the first of June, 1854, and sowed twelve quarts of timothy grass seed and three pounds of clover to the acre. The oats were light, the seeding looks well. The land I consider worth fifty dollars per acre, which was nearly worthless, when I came in possession of it. I think the great secret in reclaiming land is, to get off all the water, and then plough deep and bring up the soil, whatever it may be, to the action of the sun and air. I will now give the value of the crop on one acre for the last three years:

PRODUCTS.

Two years in corn, 80 bushels, at 92 cents, .	$73 60	
Four tons of corn fodder, at $5, . . .	20 00	
Twenty bushels of oats, at 60 cents, . .	10 00	
		$103 60

EXPENSES.

Cutting brush and preparing the land to plough,	$5 00
Ninety rods of drain, at 12 1-2 cents, . .	11 25

Ploughing and harrowing,	6 00	
Seed corn and oats,	2 00	
Hay seed,	1 25	
Thirty-five loads of manure,	35 00	
Planting, hoeing and harvesting,	15 00	
		$75 50
Profit on crop,		$28 10
Increased value of the land,		40 00
Total gain,		$68 10

STATEMENT OF AVERY D. HUBBARD.

My swamp contains about five acres, one acre of which, I offer for the examination of the committee. Previous to my coming in possession, it was drained around the edge, and was so dry as to permit a team on it, in a dry time. It bore a small quantity of coarse sage grass, barely sufficient to pay for getting. At that time, I offered the land for sixteen dollars an acre. Becoming satisfied, that it was too wet to improve, I let a man cut a drain for the muck, thus dividing my swamp and leaving little more than an acre in the lot I have reclaimed. On about twenty rods of the least boggy part, I cleared off the bogs and wood, and carted on sand and a little horse manure, sowing on a quart or two of herds-grass seed, a kind of red-top coming up around the bogs. It has produced two heavy crops of grass a year, till this year, when the drought so affected the rowen, that I have fed it down. In the spring of 1853, I took twenty-seven rods more, cleared off the bogs and wood, and planted with potatoes, putting a little lime in the hill, and I had a fair growth, though a good many potatoes rotted. In July, 1853, I took off the sage grass from the remainder and set fire to it. In about a week, it had burned all over, and had also burned about four inches of the muck. I thus entirely cleared the land of bogs, and the stumps were so loose, that a yoke of small cattle removed them from the piece, without difficulty. With a hoe I levelled down, where the roots came out; and, on the ninth of August, sowed about a pint of turnip seed and six quarts of herds-grass seed. There was a fair crop of turnips, and the grass looked fine in the fall. In May, it looked well, and a number of good judges, who saw it, said it bid fair to be the heaviest crop of herds-grass they ever saw. But the dry weather hurt it. Still, a number thought it would yield two tons to the acre, but, being at quite a distance from any scales, it was not weighed.

The spring being very wet and backward, I did not plant the piece I had potatoes on last year, till the 13th of June. I spread on about eight horse-loads of compost, made of muck and sand, two bushels of ashes, one bushel of oyster-shell lime, twenty-five pounds

of plaster, and half a cord of horse manure. I also put in the hill four loads of sand and muck from the drain. There were no weeds on the piece, either year, so I used no cultivator on it.

PRODUCE IN 1853.

Potatoes (most of them rotting),	$3 00	
120 bushels of turnips,	20 00	
1000 pounds of hay (two crops),	4 50	
	$27 50	

PRODUCE IN 1854.

3300 pounds of hay,	$16 50	
9 bushels of corn,	9 00	
800 pounds of corn fodder, at $5 a ton,	2 00	
Fall feed,	2 00	
	$29 50	
Total produce in 1853 and 1854,		$57 00

EXPENSES IN 1853.

Bogging, above the worth of bogs,	$1 50	
Planting, hoeing and digging potatoes,	2 50	
Seed potatoes, and herds-grass seed,	1 00	
Carting on sand and gravel,	50	
Leveling, and raking in grass and turnip seed,	1 25	
Grass and turnip seed,	50	
Pulling turnips,	5 00	
	$12 25	

EXPENSES IN 1854.

Ploughing, carting on manure and sand, and planting,	$2 00	
Manure, ashes, plaster, lime, and seed corn,	2 75	
Hoeing and harvesting corn,	2 00	
Cutting, curing and carting grass,	3 00	
	$9 75	
Total expenses in 1853 and 1854,		$22 00
Net gain on one acre,		$35 00
Increased value of an acre,		65 00
Total Gain,		$100 00

Sunderland, October 16, 1354.

REPORT ON FOREST TREES.

BY LEANDER WETHERELL.

NOTWITHSTANDING the liberal premium offered from year to year by the Society for the best plantation of forest trees, consisting of white oak, yellow oak, locust, white ash, or white pine, not more than three years old, and of not less than one thousand trees, produced from seed, no competitors have yet appeared to claim it. Now if he is worthy of being called a benefactor, who makes two blades of grass grow where but one grew before, then should he be called a good economist, to say the least, who causes to grow three thousand white pines on a sandy acre, that has not produced a single blade of grass, for a quarter of a century.

The whole area of the State, is said to contain four million four hundred and ninety-one thousand eight hundred and twelve acres; of this, according to the returns made about ten years since, from which we copy, there were, seven hundred and twenty-nine thousand seven hundred and ninety-two acres of woodlands; besides this there were reported, nine hundred and ninety-five thousand acres of unimproved lands, and three hundred and sixty thousand of unimprovable (?)—in all, two million forty-four thousand seven hundred and ninety-two acres, or nearly one-half of the entire area of the State not under improvement—a remarkable fact, it would seem, in one of the oldest, and most densely populated States in the Union.

It is deemed fair to state, that, a large share of this unimproved and what is denominated unimprovable land, may be rendered productive by planting suitable seeds of native trees. The number of species of native timber trees in Massachusetts, is greater than that of any kingdom in Europe. Of the oak species, there are nine, of hickories four, birches five, maples three, ashes three, pines three, walnuts two, elms two, spruces two, cedars two, besides the beech, chestnut, hornbeam, lever-wood, tupelo, nettle-tree, tulip, plane, bass, locust, hemlock, fir, hacmatack, cherry, holly, poplars, willows and numerous smaller trees. In addition to these, there are many of the species of Europe that will grow here, besides others in the Middle and Western States. In view of this great number of timber and wood producing species, nearly every kind of unimproved, including

much of what is denominated unimprovable lands, can be rendered productive of wood and timber.

The quantity of wood and timber, owing to the great demand, is annually growing less and less in this State, and consequently timber and wood, and the lands producing them, becoming more and more valuable. Hence, a reason for forest planting and culture. There are many acres of unproductive lands of different kinds in Western Massachusetts, that might, in this way, be made productive and valuable. In view of the facts that the demand for wood and timber is annually increasing, and prices advancing, and, of there being so much unproductive land in the State, it is proposed to present considerations, which, if heeded, will convert the hundreds of thousands of acres of unimproved and non-productive lands of the State, into wood and timber producing lands, thus enabling the State to produce within its own narrow bounds what is sought abroad at high prices. By introducing this mode of improvement, the lands are made better, and timber will, ere long, be furnished for house-building, ship-building, fence-making, furniture, implements of the various kinds, bark for tanning, and fuel for the fire. These may be considered good and substantial reasons for doing what has been done, and may, therefore, be done again under the direction and influence of knowledge, enterprise and enlightened Public Economy.

The subject is one of such immense magnitude and interest, and the space allowed for this Report so limited, that we can present only a very few reasons for engaging in the economical enterprise of forest planting. There are many who will object to this on the same ground that others have done to planting fruit-trees, to wit, the fear that they shall not live to enjoy the benefits of the improvement, thus anticipated. How selfish and narrow-minded is such an objection. Plan as if you were to live always, and live, as if you might die on the morrow. Then will you prove yourself a benefactor of mankind, and posterity will rise up and call you blessed. But your objection, giving it all its force, is not well founded; for the first Duke John of Athol, Scotland, saw a British frigate built of Larch, of his own planting.

Athol situated in the north of Scotland, latitude 57° north, contained the estates of the Dukes. Duke James planted, between 1740 and 1750, more than twelve hundred larch trees in various situations, for the purpose of trying this species, then new in Scotland. In 1759, he planted seven hundred larchs over a surface of twenty-nine

Scotch acres, intermixed with other kinds of forest trees. This plantation was upon a hill-side, from two hundred to four hundred feet above the sea-level. The ground was rocky, and covered with loose masses of mica slate, the whole ground not worth £3 a year. His successor, John, first conceived the idea of planting the larch, to the exclusion of all other species, upon the hill-sides about Dunkeld. Before his death, he planted over four hundred acres on the sterile hill-sides of his estate. His son, Duke John, continued his father's plans. His father died in 1774, and in 1783 the young Duke had planted two hundred and seventy-nine thousand trees. Between 1786 and 1791, he planted six hundred and eighty acres, with five hundred thousand larches.

Thus he continued to prosecute the work of larch planting upon the barren hill-sides until 1826, when he and his predecessors had planted more than fourteen millions of larch trees, covering more than ten thousand acres. It is estimated that a forest planted with larches will, in seventy-two years from the time of planting, furnish timber for building the largest ships. Before this time, the trees will have been thinned, leaving about four hundred trees to an acre. Allowing fifty cubic feet of timber to a tree, at a shilling a foot, and you will have the product of £1000 per acre, of the poorest land, consisting of rocks and shivered fragments of schist. It is stated, that the white larch on the duke's plantation, sixteen hundred feet above sea-level, eighty years after it was planted, produced three hundred cubic feet of timber fit for any use. The larch is superior to the Scotch pine, and will, in half a century, make as much wood as the pine will in a century. The Scotch larch resembles the American larch or hacmatack, as it is called.

There is much sandy land in Central Massachusetts, that might successfully be planted with the seeds of the white pine, which is a rapid grower. The cones mature so that they may be gathered in the winter, and they do not open so that the seeds can escape by Nature's processes until early spring, the best time for artificial sowing. The seeds, says Loudon, require from thirty to fifty days to germinate, and sometimes do not come up until the succeeding spring, and even later. Until the fifth year they are of very slow growth and require protection—after which the growth is rapid,—increasing from one to three feet annually. Moses Field of Leverett, a member of the committee, to whom we are indebted for specimens of the annual growth of several species of forest trees, left with us a white pine,

whose growth equalled, two feet nine inches last year, and two feet eleven inches the past season.

The white pine has been cultivated in both England and France, and has been found to grow in height from fifteen inches to three feet annually for sixty years. A tree planted near Paris, grew eighty feet in height and nine feet in circumference in thirty years. The whorl of limbs encircling the trunk marks its annual growth. Says Mr. Emerson, in his Report on Trees and Shrubs in Massachusetts, "In 1809 or '10, a belt of pines and other trees was planted on two sides of the Botanic Garden in Cambridge, to protect it from northwest winds. When they had been growing thirty-one years, ten of the white pines measured by myself, exhibited an average of twenty inches in diameter at the ground. The two largest, measured five feet seven inches in circumference at the ground. One in Hingham, at the age of thirty-two, measured seven feet in circumference at the ground, sixty-two feet and six inches in height, averaging annually, nearly an inch in diameter, and two feet in height."

We might, did space allow, give the results of oak plantations and trees of other species, all tending to encourage forest-planting. In closing, we give as one more incentive to tree-culture, the results of the growth of the different species of an English plantation of six acres, for twenty years. The soil was wet and swampy, resting upon a substratum of gravel.

		Average feet in height.	Average circumference. ft.	in.
Lombardy Poplar,	*Populus dilatata*,	60 to 80	4	8
Abele,	*Populus alba*,	50 to 70	4	6
Plane,	*Platanus occidentalis*,	50 to 60	3	6
Locust,	*Robinia acacia*,	50 to 60	2	4
Elm,	*Ulmus campestris*,	40 to 60	3	6
Chestnut,	*Castanea vesca*,	30 to 50	2	9
White Pine,	*Pinus strobus*,	30 to 50	2	5
Spruce,	*Abies communis*,	30 to 50	2	2
Larch,	*Larix communis*,	50 to 60	3	10

Who of the members of the society will commence an experiment in forest-tree-planting, and thus render productive his worn out and unproductive lands? By so doing, he will render the "Old Homestead" more of a gem, and prove himself a provident husbandman.

REPORT ON FRUIT TREES AND FRUITS.

BY LEANDER WETHERELL.

The cultivation of Fruit trees in Massachusetts has not generally received the attention, which so important a subject justly demands. This will be found emphatically true of Central and Western Massachusetts—the beautiful Valley of the Connecticut, not even affording a general exception to this remark. This want of good fruit of the various species and varieties, has been suffered to prevail quite too long. The spirit of progress and improvement which so eminently marks the present age, is beginning to be felt in this direction. Here and there, may be found gardeners and farmers who have, within the past few years, demonstrated that the luxury of good fruits, of the various kinds, may be universally enjoyed. Let these demonstrations, though few and far between, beget a speedy determination in all the proprietors of the soil, that have not already done so, to engage at once in the cultivation of fruit trees, and thus secure as a home production, what you are now so fond of sharing with your more enterprising neighbors, or friends, whether in your own town, or more remotely situated.

In looking over the Report of the Committee on Fruit Trees, made last year by its accomplished Chairman, Prof. W. C. Fowler, and published in the Transactions of the Hampshire Co. Agricultural Society of 1853, the present Chairman of your Committee, finds that the subject was treated on this wise, to wit: I. Plant a Nursery; II. Select the Ground for your Orchard and Fruit Garden, carefully; III. Prepare your Ground carefully; IV. Plant your trees carefully; V. Tend your Trees carefully. He having considered these several topics in their order, it is proposed on this occasion to present a few suggestions concerning some of the more desirable varieties of fruits. Some seem inclined to multiply varieties, more especially of apples and pears, without paying due regard to the qualities thereof.

Don, in his work on English Gardening, published in 1832, gives fourteen hundred varieties of the apple. The number has been greatly enlarged since, so that there are now about two thousand cultivated varieties.

Before proceeding to the enumeration of certain varieties which it

is desirable to cultivate, it should be remarked, that every farmer in making his selection, should be governed by the use which he designs to make of them. How many, for example, he wants for baking, drying, sauce, cider, dessert, and for other uses; also, if he designs to raise apples for the market, to select such varieties as will sell most readily, and for the highest prices. Early fruits, if located near the place of market, will be found most profitable, but if remote from the place of sale, autumn and winter varieties will be found more profitable. In selecting, you should have regard to varieties, whose trees are vigorous growers, and good bearers. There are some of the choicest varieties, whose growth is feeble, and products meager. The alphabetical list of the choice varieties which follows, will be found of service to all interested in fruit-culture in our Society.

Summer Apples. American Summer Pearmain, ripe in September; *Astrachan, Red*, ripe in August; Benoni, ripe in August; Bough, Large Sweet, August; Bohanan, August to October; Early Harvest, July; Early Strawberry, August; *Early Joe*, last of August; Lyman's Large Summer, August; Manomet, August to September; *Summer Belle-fleur*—superior, late summer apple; *Sops of Wine*, August to September; and *Williams's Favorite*, August.

Autumn Apples. Autumn Swarr, known as "Sweet Swaar," ripe in October and November; Cooper, October to December; Fall Pippin, October to December; *Gravenstein*, September to October; *Hawley*, September to October; Jewett's Red; Maiden's Blush, September to October; Northern Sweet, an excellent sweet apple; *Porter*, September; Republican Pippin; *St. Lawrence*, October; Spice Sweet, September, and Superb Sweet, September to October.

Winter Apples. American Golden Russet; Baldwin; *Baily Sweet*, super, October to January; Blue Pearmain, very popular in market from Oct. to January; Bell-flower, yellow, November to April; Belmont, October to February; Danvers Winter Sweet, keeps till April; Dutch Mignonne, November to March; *Fameuse*, November to January; *Hubbardston Nonsuch*, November to January; Jonathan, November to April; *Lady Apple*, November to May—sells for the highest prices in market; Lady's Sweet, Nov. to May; Mother, November to January; *Norton's Melon*, super, October to April; *Northern Spy*, a superior apple, retaining its freshness of flavor and appearance till July; Newtown Pippin, November to June; Peck's Pleasant, November to April; Pomme Grise, November to April; Rambo, keeps till February; Red Canada, November to May; Rhode Island Greening; Russet, Golden American; *Swaar*, November to May; *Seek-no-further*, November to February; Spitzenburgh Æsopus, November to April; Spitzenburgh Newton; *Tallman Sweeting*, November to April; *Wagener*, December to May; Willow Twig, long keeper; White Winter Calville, November to March.

Apples for Ornament or Preserving. Red Siberian Crab, and large, do., ripe from September to October; Yellow Siberian Crab, and Large Yellow Crab; and the Double Flowering China—a beautiful ornamental tree.

Pears. Very little attention has been given to the cultivation of this most delicious and desirable fruit. If you will prepare your soil by supplying such manurial specifics as are requisite, such as bone-dust, ashes, salt, lime, &c., you may be as certain of producing pears as of apples. A short list of some of the best varieties is furnished:

Summer Pears. Bloodgood, ripe in August; *Bartlett*, last of September; Dearborn's Seedling, August; *Doyenne d' Ete*, August; Madeline, the earliest variety; Tyson, September.

Autumn Pears. Beurre Diel, October and November; Beurre, Golden of Bilboa, September and October; Duchess d' Orleans, October; Doyenne, White, October and November; Doyenne, Grey; *Flemish Beauty*, September and October; Henry IV., September; *Louise Bonne de Jersey*, September and October; Napoleon, November and December; *Seckel*; Stevens's Genesee, September and October; Swan's Orange, October and November.

Winter Pears. *Beurre d' Aremberg*, December to January; Beurre, Easter, keeps till spring; Beurre Gris d' Hiver Nouveau, November to January; Glout Morceau, December; Lawrence, November to February; *Vicar of Winkfield*, November to January.

For Cooking, either Baking or Stewing. Cattillac, Easter Bergamot, and *Pound*, all keep through winter, if desired.

Nearly all these choice varieties may be grafted on the quince, and succeed well. Would it not be well, then, for our farmers to graft some of their quince trees? It is hoped they will do so.

Quinces. This fruit is very common here. The best varieties are the Orange, Pear-Shaped, Portugal, and Angers, the last being the best variety for pear-stocks.

Peaches. A few select varieties:

Bergen's Yellow, September; Yellow Rare-ripe, September; Cole's Early Red, August; Cooledge's Favorite, August; *Crawford's Early*, September; Crawford's Late Melocoton, September; *Early York*, August; George the Fourth, August; Grosse Mignonne, August; Jacques's Rare-ripe; Large Early York, August; Late Admirable, September; Morris's White; Morris's Red Rare-ripe; Red Cheek Melocoton, September; Snow Peach, September; Weld's Freestone, October; Lemon Cling, September; Old Mixon Clingstone, September.

Grapes. Selected. Catawba, Isabella, Black Cluster, Black Prince, Black Hamburg, and White Sweetwater.

In making this selection of the more choice and desirable varieties of fruits, "Barry's Fruit Garden" has been frequently referred to, a work recommended to all fruit-growers. The italic names indicate some of the most delicious varieties.

The Committee desire, in taking leave of this fruitful subject, to

press home to the mind of every proprietor of a garden spot or farm, in Western Massachusetts, the importance of fruit-culture. Then, ere long, this region will become as noted for producing an ample supply of the choicest varieties of fruits, as it has been, hitherto, for the lack of them.

APPLE ORCHARDS.

STATEMENT OF THEODORE PASCO.

I have eighty-one trees of grafted fruit in one location, on an acre and a quarter of land. A part stand on loamy, and the remainder on sandy soil. I have, also, twenty-three scattered and ungrafted trees. The trees in my orchard were grafted, six or seven feet from the ground, twelve years after they were set. Most of them are twenty feet apart, but I think it would be better, if the distance was twenty-eight or thirty feet. The land they stand on has never been ploughed since they were set; for my opinion is, that turning over the soil around the trees, two or three feet from them, and throwing on compost manure plentifully, is preferable to ploughing. Young trees standing on land, that is often ploughed, *at first*, will look very thrifty, and grow fast; but soon the roots are badly injured and the result is, the appearance of the orchard is sadly changed. My varieties of fruit are, Greenings, Nurseries, Baldwins, Roxbury Russets, Shaker Russets, Gilly Flowers, Seek-no-furthers, Winter Sweets, Golden Sweets, Gennetings, Pumpkin Sweets, Spitzenburg, Pound Royals, and several varieties of early apples. I have gathered, this year, from my grafted trees, one hundred and eighty-one bushels of good winter fruit, thirty bushels of fall apples, and one hundred and fifty bushels of cider apples.

Hadley, Oct. 16, 1854.

STATEMENT OF NATHANIEL SMITH.

My Orchard which I offer for a premium, has over seventy-five trees. About twenty of them are thirty years old, but the remainder are young trees, some of which are in bearing this year. The old trees were grafted after they were set out. The soil is sandy loam, deep and rich. The old part is in grass; broom-corn is cultivated on the other part. The manure used is common compost, and the quantity of apples is probably about one hundred and fifty bushels, valued this year from forty-five to fifty dollars. The value of the fruit was much reduced by the hail storm in September. My varieties are, Early Harvest, Porter, Congress, Greenings, two kinds of Russets,

Baldwins, Seek-no-furthers, Bell-flowers, Little-core, Swar, Gravenstein, Æsopus, Spitzenburg, Crow's-eggs, Golden Sweets, and other varieties, too numerous to mention.

I came in possession of the place last Spring, and therefore am not able to state the cost of the Orchard.

Sunderland, Oct. 17, 1854.

OLD ORCHARD RECLAIMED.

STATEMENT OF AVERY D. HUBBARD.

The land on which my orchard stands, is sandy and light. I have twenty-five trees, which have been reclaimed. Their ages vary from forty to more than a hundred years. Twenty years ago, they were almost worthless,—grown up with sprouts and dead limbs—not having been trimmed for many years—bearing only a *few "cider apples"*—none of them having been grafted, or budded. The trees were thoroughly trimmed and all the dead limbs cut off. We were careful to shape them well and have handsome tops. The trees were scraped with a hoe, till all the old and loose bark, and moss, were removed, and a compost of swamp muck, ashes, plaster, and lime, was spread under the trees, and thoroughly mixed with the soil, by ploughing. Most of them stood on ploughed land.

In a few years a thrifty set of shoots came out, which were grafted with Baldwins, Greenings, Spitzenburgs, Seek-no-furthers, Roxbury Russets, None-such, Boston Russets, Pippins, &c., &c. For several years they have borne apples enough for our family use, and I have sold some for several years, till the last year, when the worms injured them some, though not so much but that we had a number of bushels of winter apples. This year they have borne very full and very nice apples. The number of bushels, I am unable to state, as we have kept no account. We have some very early apples, which were ready for market in July, and I am satisfied we have sold apples enough this year to pay all the expense of reclaiming the orchard. In regard to manure, I have found that anything that will make corn grow, will make apple trees grow, and produce apples. *Work manure well into the soil, as far round as the limbs extend.* I think every *farmer, especially*, and all who own land, had better set out a young orchard, unless they already have done so. But if you have an old orchard, go to work and reclaim it, and, in a few years, you may have all the apples you will need in your family, till your young trees begin to bear.

Sunderland, Oct. 16, 1854.

NURSERY.

STATEMENT OF MELZAR HUNT.

My Nursery contains one hundred and fifty apple trees of different varieties—the Baldwin, Greening, Roxbury Russet, Hubbardston Nonsuch, Belle-flower, Winter Sweet, Russet, &c., &c. Most of them are three years old from the bud, or graft.

My method of raising trees is, to sow the seed in the fall, in drills—the rows three feet apart and the trees six inches apart in the rows. In April, after they have grown one year from the bud, I transplanted them, setting them two feet apart in the rows. The budding is done, when the trees are of a suitable size, which is generally the second year. The ground on which the trees are grown is spaded every spring, and hoed as often as necessary to keep it from weeds. I cultivate some other crop between the rows of trees, either carrots or potatoes.

Sunderland, Oct. 15, 1854.

PEACH ORCHARD.

STATEMENT OF DANIEL COWLES.

I have about forty peach trees. The principal part of them were grown from peach stones, that I obtained of a grocer in Springfield, in 1839. He had saved them from a few very choice lots of peaches that had been brought in to him. They were planted in the fall of 1839; and in the spring of 1842, I set them about the sides and terraces of my garden, where I thought they would do the least damage. I have practiced putting ashes about the roots, occasionally, in the fore part of the season. The greater part of the trees bear the early yellow peach. Some bear a peach, very much resembling the Early Crawford, and there are three or four varieties of later peaches. I have a few young trees of different varieties—the snow peach, the blood peach, &c., &c. My trees have borne well, every year, since they were three years old, excepting one; but not as well this season as last. I have had this season from fifteen to twenty bushels. The peaches were not as large and good as usual, this year, owing, I think, to the dry weather.

Hadley, September, 1854.

REPORT ON MANURES.

BY PROFESSOR NASH.

What your Committee find specially to commend in the practice of Mr. K. Hubbard, is, that he digs up and brings to his pig-pen and yard, in those parts of the year, when farm work is least pressing, sufficient swamp muck, to completely deodorise the excrements of the animals and to retain all their fertilizing properties, till wanted by growing plants, thus doubling and in some cases quadrupling the quantity of manure, without detracting much of any thing from its quality.

STATEMENT OF KELITA HUBBARD.

I have tried several methods of composting manures, with swamp muck, by mixing it with barnyard manure, ashes, plaster, &c., and I find it profitable. But on my swamp, I have a large quantity of sage bogs, which I have found very difficult to work into manure, and had considered them worthless; until I commenced throwing them into my hogpen. I have found, for three or four months in a year, the hogs would work them to pieces, and make some of my best and cheapest manure. My practice is, to commence about the first of August and cart them green to my hogpen, throwing in, daily, as many as they will work up. I have eight shoats, which will usually demolish a cart buck full in two days, varying according to circumstances of feed, state of the bogs, &c.

These shoats make manure in three or four months, worth	$35,00
Cost of getting the bogs, above the benefit hogs receive from eating the roots, of which they are very fond, .	5,00
Net gain, annually, ...	$30,00

Sunderland, Oct. 18, 1854.

STATEMENT OF AVERY D. HUBBARD.

The question, "how we can take a crop from our land every year, and keep it as good as when we commenced?" is a question often asked. And how we shall obtain a good crop and improve our land,

is a still harder question to answer. I have become satisfied, that the way most land is managed, after taking off a crop of grain in the summer, does not tend to improve it! Most land that is to be cultivated the next year, after taking off a crop, will produce a heavy coat of weeds, which, if turned under, will be destroyed and the land benefited. But, say some, we don't like to have our land lie up to a hot sun three or four months! Then, sow on a crop of rye immediately. It will cost but little. Half seed enough scatters when you gather the grain, in many instances; so that less than one-half a bushel will be enough seed for an acre, and the feed in the fall more than pays the cost of seed and ploughing. You will have a green crop of rye to turn in as manure in the spring, worth according to my experience, five or six loads of manure to the acre. I would say, then, to brother farmers, turn over your stubble land, where you intend to cultivate next year, as soon as possible and scatter on a little seed, and you will see a marked change in the land. It will produce a heavier crop of corn, or rye, or oats, with the same manure. And you will receive some indirect benefits in many ways, some of which I will name:

1. You will thoroughly pulverise the land, so that you will save more in fitting your land for a crop, and in first hoeing, than all it cost you the year before.

2. You will destroy the seeds of all noxious weeds, by turning them under, before they ripen.

3. You will be very apt to plough deeper. The team having become thoroughly rested since you finished your Spring work, will take hold with a "*will*;" and if the plough goes into the old "hard pan," which has been formed in years back, they'll not stop, but turn up two or three inches of it and so give the roots a chance to run down, which I have found to be of great benefit the past dry summer.

Sunderland, Oct. 10, 1854.

REPORT ON PLOWING.

BY DAVID RICE, M. D.

THE preparation of the soil with the plow, an important preliminary to the reception of seed, is, every thing considered, the *groundwork* of farming. It lies at the bottom of the whole subject, and is its grand basis. As we enter upon this theme, a multitude of inquiries suggest themselves.

To a few of the most important, we will give our attention. Many things are positively necessary, in order to have the work done prop-

erly and well. First, the quality and condition of the soil is to be considered. If not already in a fit state, the work of preparation should be thoroughly consummated. Heaps of stones, rocks, and roots of trees and shrubs, and every other impediment should be removed. The soil should be neither too wet, nor too dry. A suitable moisture is highly necessary to a smoothly-turned furrow, and the work is done with much greater ease. A day or two following a moderate rain, is a suitable period for plowing, more particularly on sward land. Secondly, the plow must be of the right kind and constructed on scientific principles. No man, however skillful, can do the work well with a poor plow. And there is no good excuse for using poor plows, at the present day. American ingenuity has brought the implement so nearly to perfection, that few more improvements can be made, and the prices are low enough, so that every farmer, however moderate his circumstances, can own the very best. We have a great many excellent varieties. There are so many, that do the work nearly perfectly, that farmers can select without much hesitation.

The different varieties have their peculiar excellencies. Some are more suitable for stony, others for sandy land. Some do the work best in light, others in heavy soils. Another is suitable for one section of country, while a different style and size is just the thing, where the first would do badly. All latitudes, lands, and tastes can be suited and well served, and the plowman, if he possesses a proper judgment, can easily adapt his implement to the condition of his land.

Thirdly: a proper and well-trained team, is an important item in good plowing. One that will go over the most ground, with a good deal of *hawing*, and *geeing*, and *goading*, is by no means the best team. More land may be badly plowed, to be sure, by "cutting and covering," and leaving the work half done, but what are the results? The team, at night, will be jaded—the plowman hoarse and full of vexation, by hallooing to his team, and lame in every joint; and—worse than all—the plowed field will appear more like the "sea in a storm," than a lot of well-turned furrows, and will be withal ill prepared for future use. One acre of sward land, is enough for two yokes of oxen to plow, in a day. They should be trained to work evenly and without fretting. They should be of the right age, condition, and strength, to draw the plow steadily along the furrow. They should be well fed, kindly treated, and have a suitable driver.

The plowman often drives, himself, when plowing with a single,

well-trained yoke of oxen; but, when more than one team is required, a driver is necessary. Boys are sometimes employed; restless, peevish and ill-tempered and entirely unfit for the business, not having half the discretion of the oxen themselves.

They can shout haw! and gee up! and flourish the whip and use the goad to perfection. The well trained and sensible animals, not used to such company, fret and miss the furrow, as the lash is inaptly and untimely applied; and, as a consequence, the land is badly plowed and the animals injured. The lash and the goad to the backs of such boys, say we, and a good discretionary driver for the oxen.

Finally: it requires an experienced and skillful plowman, in order that the work be well and properly done. It actually does require tact and experience, to guide the plow handsomely, and to turn a furrow cleverly. Other things being equal, a *fresh* and a *green* hand, and an old, well trained plowman, will produce very different results.

Width of furrow, depth, completeness in turning the sod, proportionate width and evenness of all the furrows; all these receive the attention of the experienced plowman, and when his labors are finished, he beholds his field with honest pride,—a beautiful triumph of the plow, and the laborer's skill.

The above requirements are positively necessary and essential to a well plowed field. There are other collateral circumstances, and things of minor consequence, that ought to receive attention. The plow should be kept in good order, and free from soil, rust, and corrosion. A rough, unsmooth plow turns a furrow badly and requires more power to operate it. Plows should be kept housed, well cleaned and polished, and then they will be fit for use.

They should always be supplied with a proper point. Some farmers use a plow, until the point is worn out and as blunted as a miser's conscience, and it is impossible for them to do work, even moderately well. This is poor economy, and smacks of bad calculation and want of judgment.

Fifty cents for a new point, as often as the old one ceases to do well, is money well applied. But we must not generalize too far. Our apology is our love of Agricultural themes. The land—the grand old mountains, the green sunny hill-sides, and the luxuriant meadows and the quiet old homesteads, give me. The city with her piles of granite, and her wealth! Old ocean with her navies and richly laden ships! Others may enjoy *them* if they will, but give me the

country, where God has bestowed, in abundance, beauty, health and all the objects to make life agreeable and pleasant.

" O who would be bound to the barren sea,
If he could dwell on land:
Where his step is ever both firm and free,
Where flowers arise,
Like sweet girls' eyes;
And rivulets sing,
Like birds in spring?
For me—I will take my stand
On land, on land!
For ever and ever, on solid land!"

Barry Cornwall.

REPORT ON CROPS.

BY SAMUEL POWERS.

In consequence of the severe drought, during the past summer, the number of crops entered for premium was less than usual. Each competitor was required, by the rules of the Society, to deposit with the Secretary, on or before the 15th of November, a certificate of measurement of the land by a surveyor; also, to furnish a particular statement in writing, of the kind of soil and its previous condition; the quantity, quality and expense of seeds and manure; the value of the employed labor, and the mode of cultivation; and, where the crop was planted in hills, to state the distance between the hills; also, the times of sowing, hoeing and harvesting, and the amount and value of the crop, when gathered. In several instances, these rules of the Society were not complied with and the statements were not sufficiently full and particular. To such competitors the premiums could not be awarded. But to encourage the worthy, and to induce hereafter a strict compliance with the rules, sums smaller than the premiums are recommended as gratuities.

A moment's reflection will convince any competitor, that his statement should be full in its details, and strictly accurate. It will then be most worthy of publication, most useful to others, and most creditable to himself.

WHEAT CROP.

STATEMENT OF D. D. & J. WHITTEMORE, Jr.

Our crop of wheat was raised in Sunderland on one acre and forty-one rods of ground. In 1851, the piece was sown with barley and seeded with clover. About the 12th of September, we ploughed in the second crop of clover and sowed two varieties of wheat, viz: bald and bearded white flint—one bushel of the first and one and a half bushels of the last, and harrowed well. Early in the spring, we sowed three bushels of salt, two and a half bushels of plaster, and five barrels of slacked oyster-shell lime. Our wheat suffered from the severe winter and from the drought in summer. We judged that forty per cent, was winter killed. We harvested in July, and for want of barn room, had it threshed immediately by hand. Consequently we lost a large per cent., by its being left in the straw. The quantity thus lost, was estimated at from three to five bushels. Of the bearded, we had nineteen bushels, and of the bald six bushels, or twenty-five bushels of wheat, perfectly free from rye and all foul seeds.

VALUE OF CROP.

25 bushels of wheat sold for	$62 50	
Value of straw	7 00	
		$69 50

EXPENSES.

Ploughing, sowing and harrowing, . . .	3 75	
Seed wheat, ...	3 37	
Lime, Plaster, Salt, ...	5 35	
Harvesting and threshing, ...	8 00	
Interest on land, ...	5 00	
		$25 47
Net profit, ...		$44 03

Sunderland, Nov. 8, 1854.

CORN CROPS.

STATEMENT OF AUSTIN L. CLARK.

The piece of corn, I offer for premium, contains one acre of land. It was an old pasture, that was never plowed, within the memory of the "oldest inhabitant." In May, I plowed it about six inches deep, turning in ten loads of barnyard manure. I then harrowed in eight loads of compost manure. On the 26th of May, it was planted. Eight bushels of leached ashes were dropped in the hill. The corn was hoed twice. The hills were not raised, and were three feet apart each way. The soil was a clayey loam. On the 14th of September the crop was harvested.

VALUE OF CROP.

75 bushels of corn, at $1,	$75 00	
4895 pounds of fodder, at $6 per ton,	17 47	
4 1-2 bushels of soft corn,	1 12	
		$90 59

EXPENSES.

18 loads manure,	$18 00	
8 bushels leached ashes,	80	
Plowing, harrowing and hauling manure,	6 00	
Planting and seed,	1 25	
Hoeing and ashing,	3 50	
Cutting and stacking,	2 00	
Carting and husking,	6 00	
Interest on land,	5 00	
		$42 55
Net gain,		$48 04

Sunderland, Oct. 25, 1854.

STATEMENT OF CHESTER COWLES.

I offer for premium a crop of corn raised on three acres. It was old pasture land. I seeded it down and mowed it, two years. In Nov. 1853, it was plowed with the Double Michigan plow. In the Spring, I harrowed it over. I then carted on my barnyard manure, at the rate of fifteen loads per acre. I then spread it and harrowed it again. The corn was planted by the hoe, on the 10th of May. It was hoed three times after the first hoeing. I put on plaster and ashes mixed together. In the second week of September, I harvested the crop.

VALUE OF CROP.

180 bushels, at $100,	$180 00	
8 baskets soft corn,	2 00	
Corn fodder, estimated,	18 00	
		$200 00

EXPENSES.

45 loads of Manure,	$45 00	
Manure and spreading,	17 00	
Planting and seed,	4 00	
Hoeing and cultivating,	23 00	
Cutting and stacking,	7 00	
Carting and husking,	15 00	
Interest on land,	18 00	
		$129 00
Net gain,		$71 00

Amherst, Nov. 14, 1854.

RYE CROPS.

STATEMENT OF GEORGE DICKINSON.

The land on which my crop of Rye grew, is second quality of meadow land, lying directly on the bank of the Connecticut, in Hadley. In the spring of 1853, it was plowed from seven to eight inches deep. Twelve loads of manure were applied to the acre and harrowed in. Corn was then planted and thoroughly cultivated. The corn was cut up, the second week in September, and yielded at harvest fifty bushels per acre. The ground was again plowed from eight to nine inches deep and sown with a bushel and a half of white rye, per acre, at seventy-five cents per bushel. The crop was harvested the 13th and 14th of July.

VALUE OF CROP.		
65 1-2 bushels of 56 pounds,	$76 63	
3 1-4 tons of straw,	19 50	
		$96 13
EXPENSES.		
Plowing and sowing,	$3 00	
3 bushels rye,	2 25	
Harvesting and housing,	5 00	
Threshing and cleaning,	6 00	
Interest and taxes,	15 00	
		$31 25
Net profit,		$64 88

Hadley, November, 1854.

STATEMENT OF CHESTER COWLES.

The land on which this crop was raised, contains two acres. In 1853 it was planted with corn, and manured, at the rate of twenty loads to the acre, spread on and harrowed in. After my corn was harvested, I sowed my rye, at the rate of one bushel to the acre. I harvested in July. The land was plowed deep and thoroughly harrowed.

VALUE OF CROP.		
50 bushels, at $1 25,	$62 50	
Straw, by estimate,	15 48	
		$77 98
EXPENSES.		
Seed,	$2 25	
Plowing, harrowing and sowing,	3 50	
Harvesting and threshing,	8 00	
Interest on land,	12 00	
		$25 75
Net profit,		$52 23

OAT CROP.

STATEMENT OF ALBERT MONTAGUE.

The acre of land on which I raised my crop of oats, is a sandy loam. I have planted it for two years previous. The first year upon turf, manuring in the hill. Last year I plowed in twenty loads of green manure, and put a little compost in the hill. My land was not in condition to plow for spring grain, as early by fifteen days, as the average of seasons. The crop was not as good as it would have been, had the land been in condition to sow, as early as usual. I plowed my land and sowed my oats, on the tenth of May. I sowed four bushels to the acre. Unless sowed very thick, my oats are apt to fall down. I harrowed thoroughly and then rolled them with a heavy roller. I harvested, the 29th and 31st of July, and threshed in September, and had sixty and one-half bushels. I cut them when they were about one-half white.

VALUE OF CROP.		
60 1-2 bushels of oats,	$30 25	
1 1-2 tons of straw,	9 00	
		$39 25
EXPENSES.		
Plowing and sowing,	$2 00	
Seed,	2 00	
Harvesting and threshing,	4 50	
Interest on land,	4 50	
		$13 00
Net profit,		$26 25

Sunderland, Nov. 1, 1854.

BROOM-CORN CROPS.*

STATEMENT OF AVERY D. HUBBARD.

The land on which my crop of broom-corn was raised, contains just one acre, and is a light sandy soil. In 1852, a crop of corn was raised of about twenty bushels to the acre. In the fall of the same year, it was sowed with rye and had a fair crop, of about ten bushels to the acre. No manure of any kind was used on it, in 1853. The land is light and mellow; and is easy to cultivate. Ten cart-loads of compost manure were spread upon it, just before plowing. The manure was made, the winter previous, in my hog-pen, which is directly under my home barn. It is composed of about two parts of

* The premiums on crops of Broom-Corn were awarded, as follows. To Avery D. Hubbard, $4, and to Kelita Hubbard, $2, both of Sunderland.

swamp muck to one of horse manure; all thoroughly worked together by the hogs, and did not cost over fifty cents a load, though I have set the price a little higher. I plowed, about the 20th of May, and planted on the 23d, with Woodard's improved planter, dropping about one-half bushel of superphosphate of lime in the hill. The rows were about three feet apart, and the hills two feet apart. The corn was well stocked and very even. The drought affected the crop but little, the land being plowed deep. The crop was gathered, about the last of September, and has been scraped, and the seed cleaned up. I have made no account of carting or spreading the manure, as I think it improved the land more than what the manure cost.

VALUE OF CROP.

700 pounds of broom-brush, at 10 cents, . .	$70 00	
52 bushels of broom-seed, at 40 cents, . .	20 80	
		$90 80

EXPENSES.

Plowing and harrowing, ...	$1 62	
Planting and seed, ...	1 00	
Phosphate and manure, ...	9 00	
Interest on land, ...	2 40	
Hoeing three times, ...	4 38	
Harvesting and scraping, ...	6 50	
Cleaning seed, ...	1 50	
		$26 40
Net profit on one acre, ...		$64 40

Sunderland, Nov. 15, 1854.

STATEMENT OF KELITA HUBBARD.

The piece of land on which this crop was raised, contains one acre. The land, previous to 1853, had been mowed for several years. It was turned over in May of that year, and planted with Indian corn; fifteen dollars worth of compost manure being plowed in, and a single handful of a mixture of twelve-sixteenths of ashes, three-sixteenths of lime and one-sixteenth of plaster dropped in the hill. The crop was good, yielding about sixty-two bushels of shelled corn to the acre. The land is sandy loam with a gravelly subsoil, inclined to be wet from springs above. It was so wet, that I could not plant till the last of May, 1854. I manured in the hill, with ten cart-loads of compost manure, worth six dollars. I planted on the manure, hoed three times, and harvested about the first of October.

VALUE OF CROP.

800 pounds of broom-brush, at 10 cents, . .	$80 00	
70 bushels of seed, at 40 cents, ...	28 00	
		$108 00

EXPENSES.

Plowing and harrowing,	$1 50	
Manuring and seed,	2 00	
Planting and hoeing,	7 00	
Harvesting and scraping,	10 00	
Manure and interest on land,	10 00	
		$30 50
Net profit,		$77 50

Sunderland, Nov. 15, 1854.

POTATO CROPS.

STATEMENT OF CALVIN D. EATON.

I offer for premium a crop of potatoes raised on one acre of land, in Pelham. The piece was old pasture land, with some brush on it. In May, I plowed twice, harrowed and planted with peach-blow potatoes. I used no other manure than one hundred and twenty-five pounds of plaster, and hoed only once. I dug the potatoes about the twelfth of October. I used two barrels of dry ashes, before hoeing. My crop was one hundred and seventy bushels of extremely large potatoes, many of them weighing over one pound.

VALUE OF CROP.

170 bushels, at 40 cents,	$68 00

EXPENSES.

Interest on land,	$1 20	
Plowing and harrowing,	6 00	
Planting,	4 00	
Seed and plaster,	7 00	
Hoeing and digging,	8 00	
		$26 20
Net profit,		$41 80

Pelham, Oct. 30, 1854.

STATEMENT OF CHESTER COWLES.

The land on which this crop was raised, contains one acre. It is old pasture. I plowed it in May and planted eight bushels to the acre, and harvested in October. I put on the manure at the rate of twelve loads to the acre.

VALUE OF CROP.

150 bushels, at 50 cents,	$75 00

EXPENSES.

Seed,	$4 00	
Plowing and harrowing,	2 50	
Manure,	12 00	
Speading and harrowing,	1 50	
Planting and hoeing,	6 00	
Digging and carting,	8 00	
		$34 00
Net profit,		$41 00

Amherst, Nov. 14, 1854.

CARROT CROP.

STATEMENT OF O. & F. H. WILLIAMS.

The ground on which we raised carrots, this year, measures one half-acre. The soil is of a light loam. It was turf land, had been down to grass three years, and was in a good state of cultivation. Plowed eight inches deep, with Michigan double plow. The manure was taken from my hog-pen and composted with one-third dirt. The amount of manure composted for my carrots was twelve cart-loads.

VALUE OF CROP.

336 bushels, at 25 cents,		$84 00

EXPENSES.

Plowing and harrowing,	$2 00	
Manure, 8 loads,	8 00	
Carting and spreading,	1 00	
Planting 2 feet apart, with planter,	25	
Half a pound of seed,	40	
Hoeing first time, 3 days,	3 00	
" second time, 4 days,	4 00	
" third time, 2 days,	2 00	
Plowing between rows,	25	
Harvesting, $6; Interest on land, $3,	9 00	
		$29 90
Net profit,		$54 10

TURNIP CROP.

STATEMENT OF O. & F. H. WILLIAMS.

The piece of ground on which I raised my turnips, this year, contains fifty-two rods. The piece is of a light loam, having been down

to grass three years. After taking off a crop of grass, I turned the sward over without manure, eight inches deep. Thus, you see, I obtain two crops a year. The land was not in a high state of cultivation.

VALUE OF CROP.

61 bushels, at 25 cents, ...		$15 25

EXPENSES.

Plowing and harrowing, ...	$1 00	
Drilling with machine, ...	25	
Seed, long kind, ...	12	
Plowing between rows, ...	25	
Gathering crop, 3 days, ...	3 00	
		$4 62
Net profit, ...		$10 62

CROP OF HERDSGRASS SEED.

STATEMENT OF OLIVER WILLIAMS.

I have raised, the past season, two bushels of herdsgrass seed, on thirty-five rods of ground. A sample of the seed, I had on exhibition at the late Fair. The land on which the seed grew, was a light loam. This piece was selected from three acres, which, in 1852, were sowed with rye and oats, my usual spring grain. The field—aside from these thirty-five rods—was cut about the seventh of July, the remainder about the first of August. I consider the hay, after the threshing off the seed, worth about half price. I recommend to all farmers to raise their own grass seed. My yield was at the rate of twenty-four dollars to the acre.

VALUE OF CROP.

2 bushels of seed, at $3, ...	$6 00	
Hay, ...	2 00	
		$8 00

EXPENSES.

Grass seed, ...	$0 50	
Plowing and harrowing, ...	75	
Interest on land, at $50, ...	75	
Cutting and thrashing, ...	1 00	
		$3 00
Net profit, ...		$5 00

Sunderland, Oct. 16, 1854.

REPORT ON HEIFERS.

BY G. C. MUNSELL.

The rearing of good dairy stock is an object of great importance to the farmer. The cow ranks high among our domestic animals. Probably no other is of more importance to us. She furnishes both the necessaries and the luxuries of life. To the farmer she is a source of both luxury and profit. How desirable, then, that, in rearing dairy stock, he should produce animals of the best qualities for his purpose. And the question, *how* this can be best accomplished, is one of much interest to breeders of neat stock. If "like produces like," too much care and skill can hardly be exercised by the breeder in the selection of his breeding animals. He should select such as have the style and qualities, desired in their offspring.

In rearing heifers for the dairy, such should be chosen as have descended from good milking stock. It is not only important, that the dam should have been a good milker, but equally so that the sire should have been bred from a good milking race. It is generally believed by breeders of experience, that the male has as much influence upon the milking qualities of the progeny, as the female. Hence, the necessity of having well selected males, as well as females, in attempting to rear good stock for the dairy. The breeder should not only use superior animals to breed from, but reserve for himself the better portion of their progeny. If a heifer shows an aptitude to fatten easily, she is generally considered worth more for the shambles than the dairy; and, consequently, goes into the hands of the butcher; while some hard-hided one, which could not easily be fattened, is reserved for the milk-pail.

The opinion is very prevalent among farmers, that a heifer which takes on flesh rapidly, will not make a good milker. Perhaps the fact, that most good milkers become thin of flesh, when in full milk, leads to this opinion. But such cows generally fatten quickly, when dry. It would seem, that the fact of a heifer's fattening easily, should lead to the belief, that she would make a good cow for butter, her aptitude to fatten showing her system to be such, that all the carbon of her food is not required for heat and respiration.

REPORT ON POULTRY.

BY N. G. TROW, M. D.

THE question, whether the farmer can *afford* to spend much time or money in this department, is one which is not very definitely settled. That it is a very comfortable matter, to have a generous number of eggs and fat chickens and turkeys during the year, and especially about Thanksgiving time, is a point about which there is probably very little dispute. But, when we come to the question, whether in view of the dollars and cents, we can actually *afford* to have them, the subject seems at present to be an open one.

That there is as much pleasure to be derived from the prosecution of labor in this department, as from any other connected with the farm, we believe to be susceptible of abundant proof. Indeed, what can be more beautiful than a flock of fowls, where every tint and shade of color is presented in the very perfection of beauty to the eye of the beholder; and, yet, this perfection, with comparatively little care in "crossing," is easily obtained. Again, what farmer would be willing to dispense with the call of the noble "Farm Cock," at the earliest dawn of each returning day? or, who can be insensible to the value of a flock of fowls in destroying worms and insects, which otherwise might exert a very deleterious influence on the growing crop?

One of the competitors at the Fair, remarked to the committee, that, in his opinion (and he has devoted as much time to this subject as any man in this vicinity), "the good thus accomplished, would more than compensate for the damage, which they would naturally do to the crops, either in the garden or upon the farm.

But is there an actual profit in raising poultry? We are constrained to answer this question in the affirmative; and, in confirmation of our views, we wish to introduce some statistics, very kindly furnished by Mr. L. P. WARNER, of Sunderland, showing the value of his flock of hens, during the past year.

On the first of January, 1853, Mr. Warner valued his stock of hens at $23.25; and, at the close of the year, at $24. He thinks the average number through the year would be about sixty. His largest number of laying hens at any one time was seventy-five. The largest number of eggs in any one day was seventy.

To these hens, he fed during the year, food worth $39.45, consisting of corn, potatoes, meat and bone-meal. The whole number of eggs produced was 5451, which were sold for $60.79. The receipts for poultry sold, were $30.28, amounting to $91.07. If from this sum, we subtract the whole expense for feed, we have in round numbers $51.62, as the clear profit on the $23.25, the capital invested. We are aware that we have not estimated the interest; neither have we spoken of the item of manure, which must have been an important one, and, if added to the seventy-five cents in our favor at the close of the year, would pay the interest on the capital invested and swell the amount of clear profit very considerably.

We perhaps ought, also, to state that the expense of the outfit was next to nothing.

In view of facts like the above, we feel ourselves justified in calling the attention of farmers to the importance of giving more attention to this subject. It must be apparent to every one, that the profit in proportion to the amount invested by Mr. Warner, was enormous. Whether others would be alike successful, experiment alone can determine.

REPORT ON BUTTER.

BY T. G. HUNTINGTON.

The committee appointed to examine and report on *Butter*, became, at an early stage of their proceedings, fully impressed with the difficulty of doing justice to the charge committed to them. To decide justly on the relative merits of the lots entered for exhibition, it will be readily conceded, was no easy task; especially when all are supposed, by the exhibitors at least, to be of the first quality. To come to a decision which should be universally satisfactory, was not to be thought of, or hoped for, indeed. Even if we had granted prizes to every lot, we doubt whether our course would have found more favor, than the one we have adopted.

We beg leave to assure those of our competitors, who have not been successful, that the whole thing is a mere matter of *taste*. This is true. Though we would by no means have it understood, that we

performed our duties blindfold, we hold that the eye may taste as well as that other organ, which so generally claims a monopoly of that very agreeable exercise.

Before entering upon our examination, the thought of a division of labor was suggested, but almost as soon given up; for it was seen at once, that this matter of taste stood in the way. We thought of the old proverb, "What's one man's meat may be another man's poison," and gave up the project.

Then came the unwelcome conviction, that as tastes differ, so our awards must almost necessarily be the result of a *compromise*. Finding this train of thought leading to some reflection on human fallibility, not very flattering to our self esteem; and feeling somewhat vexed too on being compelled to resort to a principle, which has been so hotly decried for the past year—we resolved upon another mode of operation. Believing that among so many specimens, there must be some very near perfect, we agreed upon certain qualities, which should be indispensable to insure the drawing of a prize.

The first requisite should be cleanliness. This is necessary through the whole process, from the milking of the cow to the finishing stroke of the butter paddle. Any suspicion of unfaithfulness, here, cloys the appetite at once; and makes one perfectly willing to eat his bread alone, rather than entertain a doubt, whether he is taking into his mouth what properly belongs to the barnyard or the scavenger.

Closely connected with this, is the absence of all foreign taste in butter. Many housewives, who perhaps are not justly chargable with want of neatness, suffer this important article of manufacture to go from under their hands, sadly intermixed with substances entirely foreign to the pure article. Salt is one of these and though necessary in certain proportions—it will hardly do to adopt the principle in regard to its use, that there cannot be too much of a good thing. We believe that one grand defect, here, is that cream is kept too long, especially in the summer season, before it is churned. Few are aware, perhaps, how soon putrifaction takes place in milk, in the hottest weather in summer. Undoubtedly the most satisfactory results are obtained, where the churning is performed every day. This is not practicable in many of our small dairies; but, where a tolerable article is expected, it should be done as often as two or three times a week. Butter seems to possess, in a remarkable degree, the power of appropriating to itself the flavor of substances, with which it is in near contact. One of your Committee, anxious to protect his butter from

the fine dust, which is apt to settle upon it while on exhibition, procured a box, which was to be covered with glass. The box, for want of other material, was made of some sort of pine wood. In order to test the matter, and ascertain whether the butter would take any taste from the wood, a small lump was put upon a plate and placed in the box. In twelve hours, it had imbibed so much of the flavor of the wood, as to become strong and acrid, even, to the taste. In the examination made by the committee to-day, the importance of this matter was amply illustrated; much too large a proportion of the lots exhibited, having a taint of some foreign substance. While on this point, it may be well to say, that the quality of cream is sometimes materially damaged by being kept in a close vessel. This is probably in consequence of the confinement of certain gases, which operate injuriously and which would escape, if there were opportunity. Another of our requisites is color and density. The color, common consent declares, should be yellow, and it is useles to argue the question, why it is so. It is granted, that this is not a matter wholly within the dairywoman's power; but then, if she has a husband and knows how to manage *him*, she may not find it so very difficult, to induce him to make a trial of his cows and keep only such as shall, by the aid of her facile hands, crown his board with a production, as pleasing to the eye, as it is tempting to the appetite.

REPORT ON WHEAT BREAD.

BY REV. GEORGE E. FISHER.

It was a query with the chairman of the Committee, what qualifications he was supposed to possess for this Committeeship. He at length concluded, that the appointing powers of this Society must have known, that he has been living for several years upon good bread,—first-rate bread, the *very best of bread*,—which is the case; and that they supposed, and that rightly, that he would consequently know by intuition, what good bread is. He is persuaded, also, that in the further constituting of this Committee, search was made, and that wisely and successfully, for manufacturers who stand at the head of their trade or profession.

We *might* suggest that bread is *the staff of life;* but as we have a decided aversion to seeming originalities of thought and expression, and to the starting of novelties and striking figures of speech, we refrain from the suggestion.

Bread, *real* bread, that which is worthy of the name, is always *good;* i. e., it is light, sweet, eatable and digestible. There is much that passes for bread, which is no bread at all. It is a ponderous, acidiferous, uneatable, indigestible, conglomerated mass; fit food, indeed, for Congressional doughfaces; but by no means such as honest and honorable men ought to take, whether they belong to healthy, or "unhealthy," or profoundly unknowing or unknown political organizations. Such a preparation is not bread. It is libellous to call it so.

Between what we have called bread, and what we have termed *no bread*, comes in something which, as yet, is a nondescript, though it may not much longer remain such. It is neither very light, nor very heavy,—neither very sweet, nor very sour,—neither very eatable, nor uneatable,—neither very digestible, nor indigestible. It is an *amphibious* article, too poor to be eaten, and too good to be uneaten. It is therefore a great evil. It sorely vexeth one's righteous or unrighteous soul. We wish it distinctly understood, at this point, that we are not speaking from any painful personal experience. Good bread is a good thing. Bad bread is a bad thing. Amphibious bread is neither the one nor the other.

Bread-making is a great art. We call it *an art*, for we are not aware, that nature produces the *art*-icle, i. e., bread does not *grow* bread. It is an art in which, too many, whom, by doing violence to language and truth and charity, we may possibly term *housekeepers*, are altogether unskilled. Yet it is an art and an accomplishment, far greater and worthier of attainment, than the most of those which our *would-be* ladies seek to acquire, and in which it is their pride to become proficients. In its real dignity, beauty and utility, it casts entirely into the shade music and drawing, dancing and painting, and simpering, artificial and affected mannerisms, which occupy the whole minds and employ the tiny, delicate fingers, which it would be perfectly shocking and horrifying to soil by contact with the realities and utilities of life in the kitchen, in the cellar, in the washing-room, or in the cooking-department.

The exhibition of bread, to-day, has shown that there are large numbers within the limits of this Society, who are well qualified for

promotion to a professorship in the science of bread-making. We trust, that no mother in Hamphire and Franklin will ever allow a daughter to escape initiation into all its mysteries, or to go forth to the duties of a new home, without a thorough training and practical acquaintance with this science. We fear that many mothers are in this respect verily guilty. If not guilty of moral wrong, they are by no means irresponsible for some little *social* disturbances, that sometimes ensue. Heavy, hard, sour bread, as the rule and not merely a rare exception, *tends* to produce sourness and heaviness where it were desirable, that they should never be. For *bread*, there should be no *family jars*.

REPORT ON RYE BREAD AND FLOUR.

BY REV. DAVID EASTMAN.

The committee on Rye Bread and Flour, found many good specimens offered for premiums. There were fourteen loaves of bread, most of which were very white and pleasant to the taste; exhibiting care and skill in combining the materials entering into their composition. Some of the bread would have been supposed to have been wheat, had we not seen it labelled "Rye Bread."

From the specimens presented, we were satisfied, that some of the housekeepers in this vicinity "are workmen who need not be ashamed," and can suit the most fastidious lovers of Rye Bread. With their tables supplied with such an article, there would be no occasion for apologies for the absence of wheat. Rye Bread among our farming population, enters largely into the food of families; and, when properly made of the best materials, contributes to good nature, health and happiness. We recommend, therefore, to all matrons to carry the art of manufacturing good Rye Bread to as high a degree of perfection as possible; and to educate their daughters *practically*, in this most honorable and useful duty. If this branch of domestic labor is thoroughly understood, it is a guarantee, that all others will be attended to in their place.

There were eight entries of nice Rye Flour, capable of making the very best bread of the kind. One of the boxes, contained a remarkably white and beautiful specimen, to which the committee unanimously awarded the first premium. Three others were nearly alike in their good qualities, rendering it somewhat difficult to decide to which to give the preference. All the entries were worth presenting, and were alike exhibitions of taste and skilful management, in the cultivation of rye. Good Rye Flour depends on several things: The seed sown should be of the best quality. Meadow or plain land is said to produce the whitest and nicest flour. The harvest must be gathered, in just the appropriate time, in a dry state. Very much also depends upon the grinding. If all these things are attended to, flour may be produced from rye, almost equal to the wheat flour, which comes from the west. Rye so useful for bread, as well as for animal food, should receive more attention from our farmers in its cultivation, especially as it commands so high a price.

REPORT ON RYE AND INDIAN BREAD.

BY REV. W. H. BEAMAN.

An essential to good housewifery is the art of making good bread. The managers of this Society have shown their appreciation of this fact, by assigning three committees to this department. Had they selected *wo*men, instead of *clergy*men for *chair*men, they would have shown themselves to be *wiser* men. For we meet the women here on their *own ground;* and if we are the mouth pieces, we must say about what they tell us to say, in making up our judgment. The awards have accordingly been made and published.

A few words may be hazarded however without their personal assent. There were five specimens of the old fashioned Rye and Indian Bread—such as everybody eat in the days of our childhood, before warm wheat Biscuit and Dyspepsia came into fashion. It is hoped, the day is distant, when this brown staff of our revered, vigorous ancestors, will be wholly exchanged for one that is whiter, lighter, but not stronger. If the wives and mothers would have hardy

and longlived husbands, sons and daughters, they must know how to make good brown bread. If the daughters would be well qualified to take their mothers' places, they must be ambitious to excel, not in the work of the toilet, the graces of the drawing-room, the arts of embroidering, painting and music, *only*; but in that of baking, *especially*. This is woman's *right*, and should be her *pride*, rather than harranguing public assemblies, and managing the affairs of State.

It is to be hoped that, next year, instead of eight, there will be, at least, twenty-eight entries of brown bread. That the daughters, as well as mothers, will have a hand, and a name *in* them, and the responsibility of judging and reporting *upon* them. Certain it is, that among all the arts of women, which are many—but few have a higher practical importance, than that of making plain, good and wholesome bread; essential qualities of which are, *sweetness*, *lightness*, and (to coin a word) *doneness*. In order to this, the materials must be well selected, well mixed, well raised, and well baked. Then it will be well eaten and well digested; and the husbands, fathers and sons, will thank the Giver of all good, or ought so to do,—not only for this "staff of life," but for the hands which he has prepared to furnish it. Of the housewife who excels here, it is to be presumed, that "The heart of her husband doth safely trust in her, so that he shall have no need of spoil." that "She looketh well to the ways of her household, and eateth not the bread of idleness"—that "Her children rise up and call her blessed; her husband also, and he *praiseth her*."

REPORT

ON AGRICULTURAL IMPLEMENTS.

BY CHARLES H. FIELD.

"MIND makes the man." It may be said with as much truth, that mind makes the community or nation, The yankee mind is said to be peculiarly inquisitive. Whether inquisitiveness and inventive genius are necessarily co-partners, we will leave for Doctors and Philosophers to decide, inclining, however, to the opinion that they are. The live Yankee, with his bosom companions, a jack-knife and pine

stick, almost invariably produces something both novel and useful. Be this as it may, we may rest assured, in this age of mechanical fairs, agricultural societies and baby shows, that the genius of America is inventive.

The character of our inventions, whether in science or art, is eminently practical, adapted to our wants, and calculated to elevate all classes and conditions of society. Other nations may have excelled us in matters of taste and luxury. But it is only in countries like our own, with its vast territory, and unbounded resources, where minds, always busy and uninfluenced by the vagaries of olden time, are so eager in the search after wealth and progress, that invention assumes its true character of administering to the wants of all. As a natural result of our wants as a nation, our efforts have been eminently successful. American genius has controlled that mighty power, steam, and demonstrated its great superiority as a propelling power, thus rendering it subservient to the wants of man. It has tamed the fury of the lightening's power, and bid it go on messages of mercy, rather than of vengeance. It has tunnelled mountains, levelled hills, filled up valleys, explored the bottom of the sea, dug deep into the bowels of the earth for hidden treasures, and visited the starry spheres above.

No country can compete with us in cheap but useful agricultural implements; in the manufacture of many articles from the precious ore. No country possess machines for the working of lumber or other manufacturing purposes in such perfection. Our rivers are traversed by the most elegant steamboats. Our ships, which ride so majestically over the billowy deep, far outstrip all others in speed, beauty and durability. In short, our country affords abundant evidence of the contributions of inventive genius to her prosperity and happiness. It would be useless to enumerate the advantages we possess at the present day, as compared with the past.

It has become a matter of history, a "living epistle, known and read of all men." In the brief interval from one agricultural fair to another, we may not perceive any remarkable change; but when we look back for but one half century, who can fail to observe the "signs of the times," and to look forward with renewed hope and confidence into the future.

In improved implements of husbandry, there has been a marked advance, within a few years. Science has thrown her light upon the farmer's pathway, rendering his occupation both pleasant and profitable. The drudgery and monotony of the farmer's life is fast wear-

ing away under the potent influence of mowing, winnowing and thrashing machines, seed sowers and planters, corn shellers, patent churns and patent cow-tail holders. Necessity, "the mother of invention," has caused great improvements to be made in all the implements of husbandry, and the farmer can give no satisfactoay reason why his work should not be done in its season, and *well done.* Yet we fear there are many, who, from mistaken notions of economy, or fear of spending the "almighty dollar," follow in the beaten track of their fathers and grandfathers. Such would prefer the Syrian plough of old, which was made of the branch of a tree, cut off below some crook, and tipped with iron, and drawn by a small cow or ass, merely scratching the surface of the ground, to the double, cast iron plough of the present day, that is capable of pulverizing the soil to the depth of twelve or fourteen inches. No good farmer will fail to employ these aids to labor, which, as experience has taught, tend to improve the condition of all classess, and to advance civilization. The farmer and mechanic are bound together by the strongest ties of interest, and whatever contributes to the prosperity of the one, operates equally to the advantage of the other. We cannot forbear, here, from alluding to the too common practice of furnishing our youth with worn out or refuse tools; and then requiring too great an amount of labor, or finding fault with its execution. We need not wonder that they look upon agriculture, as servile or slavish; and on its votaries, as mere serfs; and leave the old homestead, with all its hallowed associations, in pursuit of other occupations. Encourage them not only by precept and example, but by surrounding them with those comforts and conveniences, which none but the husbandman can enjoy, which are so well calculated to secure that greatest of earthly blessings, a contented and happy mind.

The exhibition of specimens of agricultural implements and mechanic arts, was good, comprising thirty entries, but time and space will forbid an extended notice. Among the best, were the fire engine of Cataract Engine Co., of Amherst, which, judging from its mechanical appearance, would work like a charm; a Seraphine, entered by L. G. Rice of Montague, of beautiful finish and superior tone; a telegraph machine by G. H. Brown, of Granby, of fine mechanical appearance —samples of agricultural implements by Lovett & Dickinson of Amherst, which would recommend themselves to any farmer; samples of axes, adzes, &c., by C. W. Hannum of Chester, which brought forcibly to mind the old adage, "beware how you handle edge tool." W.

Fuller of Amherst, exhibited a floating ball Washing Machine, which caused a gleam of satisfaction to rest upon the faces of matronly dames and rosy-cheeked damsels. There were many other articles worthy of praise; and we regret that our means were so limited, in bestowing gratuities to contributors to this important part of our fair.

Agriculture is said to be the mother of the arts, and we hail with pleasure the day, not far distant, when science and agriculture shall go hand in hand, and when the husbandman shall take his proper rank among the professions.

TREASURER'S REPORT.

PERMANENT FUND, Gross Receipts to Nov. 30, 1854, $3485,51.

RECEIPTS OF 1854.	
Cash rec'd fr. Commonwealth,	$600 00
" " income of the fund,	156 18
New members and donations,	251 00
Whole amount of receipts,	$1007 18

DISBURSEMENTS OF 1854.	
Premiums and gratuities Paid or Payable,	$450 42
Printing Transactions, 600 copies for distribution,	100 00
Current Expenses of the Society, about	300 00
Disbursements for the year,	$850 42

ANALYSES OF PREMIUMS AWARDED.

Whole number of Competitors,	600
Whole No. who rec'd Premiums,	207
Whole am't awar'd in Premiums,	$485
Number of Towns in which Premiums were distributed,	21

Amherst,	$140 00
Belchertown,	17 10
Chester,	75
Conway,	2 00
Deerfield,	10 50
Erving,	4 00
Granby,	35 60
Greenwich,	3 00
Hadley,	79 00
Leverett,	12 50
Montague,	6 50
New Salem,	5 00
New York,	20
Northampton,	11 90
Pelham,	6 25
Prescott,	2 65
Shutesbury,	5 00
South Hadley,	11 25
Springfield,	3 00
Sunderland,	128 55
Whately,	25

JAMES W. BOYDEN, *Treasurer.*

AMHERST, Nov. 30, 1854.

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OF THE

HAMPSHIRE AGRICULTURAL SOCIETY.

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Adams, John S.
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Belden, Timothy C.
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Boltwood, William Mrs.
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Bridgman, Henry A.
*Bridgman, Jonathan
Bridgman, Mary S.
Briggs, Ebenezer
Briggs, Ebenezer Mrs.
Burnham, George Jr.
Burnham, Geo. Jr. Mrs.
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Carter, Samuel C. Mrs.
Chandler, Aaron M.
Church, Elihu S.
Church, Elihu S. Mrs.
Church, Spencer
Clark, Simeon
Clark, Simeon Mrs.
Clark, W. S. Prof.
Clark, W. S. Mrs.
Cobb, Henry
Conkey, Ithamar
Conkey, Ithamar F.
Conkey, Ithamar F. Mrs.
Converse, Daniel
Converse, Daniel Mrs.
Cooke, David S.
Cooke, David S. Mrs.
Cook, Enos F.
Cooley, Alden
Cooley, Moses D.
Cowles, Chester
Cowles, Chester Mrs.
Cowles, Clinton J.
Cowles, Clinton J. Mrs.
Cowles, Enoch
Cowles, Enoch Mrs.
Cowles, Erastus
Cowles, Erastus Mrs.
Cowles, James
Cowles, James Mrs.
Cowles, Jonathan
Cowles, Jonathan Mrs.
Cowles, Jonathan Jr.
Cowles, Jona. Jr. Mrs.
*Cowles, Julia B. Miss
Cowles, Levi D.
Cowles, Levi D. Mrs.
Cowles, Moses
Cowles, Moses Mrs.
*Cowles Oliver
Cowles, Ransom
Cowles, Ransom Mrs.
Cowles, Submit Mrs.
Cummins, E. A. Rev.
Cummins, E. A. Mrs.
Curtis, Oliver H.
Curtis, Oliver H. Mrs.
Cushman, John R.
Cushman, John R. Mrs.
Cutler, Esther Miss
Cutler, Elisha P.
Cutler, George
Cutler, George Mrs.
Cutler, Robert
Cutler, Robert Mrs.
Cutler, Samuel F.
Cutler, William
Cutler, William Mrs.
Dana, Joseph
Darling, Benjamin R.

* Deceased.

Dexter, David
Dexter, David Mrs.
Dickinson, Asa & Noble
Dickinson, Bela U.
Dickinson, Bela U. Mrs.
Dickinson, Charlotte Miss
Dickinson, Daniel
Dickinson, Daniel Mrs.
Dickinson, Daniel A.
Dickinson, Emily E. Miss
Dickinson, Edward
Dickinson, Edward Mrs.
Dickinson, Enos
Dickinson, Enos Mrs.
Dickinson, Enos 2d
Dickinson, Enos 2d Mrs.
Dickinson, John
Dickinson, John Mrs.
Dickinson, Joseph
Dickinson, Josiah
Dickinson, L. A. Miss
Dickinson, Lydia E. Miss
Dickinson, Lovina Miss
Dickinson, Lucius
Dickinson, Marquis F.
Dickinson, M. F. Mrs.
Dickinson, Moses B.
Dickinson, Moses B. Mrs.
Dickinson, Oliver
Dickinson, Oliver Mrs.
Dickinson, Sarah M. Miss
Dickinson, Samuel S.
Dickinson, S. S. Mrs.
Dickinson, Waitstill
Dickinson, Waitstill Mrs.
Dickinson, William
Dickinson, William 2d
Dickinson, Wm. Austin
Dickinson, William E.
Dickinson, William W.
Draper, Lewis L.
Dutton, Alonzo
Dutton, Alonzo Mrs.
Dwight, E. S. Rev.
Dwight, E. S. Mrs.
Eastman Austin
Eastman, Austin Mrs.
Eastman, Baxter
Eastman, Baxter Mrs.
Eastman, Solomon K.
*Eastman, S. K. Mrs.
Edwards, Simeon
Farrar, George H. Mrs.
Ferry, Sarah P. Miss
Field, D'Estaing Mrs.
Fish, Cummins
Fish, Seth
Fish, Seth Mrs.
Fisher, George E. Rev.
Fitch, Newton
Fitch, Newton Mrs.
French, Mary F. Miss
Frink, Henry
Frink, Henry Mrs.
Fuller, Walter
Gaylord, Flavel
Gaylord, Eleazer
Gaylord, William
Gaylord, William Mrs.
Goodale, Noble T.
Goodale, Rufus
Goodale, Rufus Mrs.
Gray, Joseph P.
Gray, Joseph P. Mrs.
*Green, Eunice
Green, Moses B.
*Gridley, Timothy J. Dr.
Grout, Austin
Gunn, Lyman
Gunn, William F.
Hallock, Leavitt
Hallock, Leavitt Mrs.
Hammond, Salem
Hammond, Salem Mrs.
Harlow, Nathaniel L.
Hastings, Edmund
Hastings, Edmund Mrs.
Hastings, Joseph C.
Hastings, J. C. Mrs.
Hastings, Thomas
Hastings, Thomas Mrs.
Haven, Joseph Prof.
Haven, Joseph Mrs.
Hawley, Charles M.
Hawley, Harrison
Hawley, Justin
Hayward, Charles F.
Hayward, Chas. F. Mrs.
Henderson, Timothy
Hills, Leonard M.
Hills, Leonard M. Mrs.
Hills, Liberty
Hills, Liberty Mrs.
Hills, Samuel
Hills, Samuel T.
Hills, Samuel T. Mrs.
Hitchcock, Edward
Hitchcock, Edward Mrs.
Hobart, Edmund
Hobart, Edmund Mrs.
Hobart, George W.
Hobart, Geo. W. Mrs.
Hobart, Jeremiah W.
Hobart, Joshua
Hobart, Stillman
Hobart, Stillman Mrs.
Howard, H. C. & M. W.
Howard, M. W. Mrs.
Howe, Albin P.
Howe, Albin P. Mrs.
Howland, Warren S.
Howland, W. S. Mrs.
Hubbard, Ethan D.
Hubbard, Ethan D. Mrs.
Hubbard, Orton
Ingram, Ezra
Ingram, Harrison
Ingram, Harrison Mrs.
Ingram, Rufus
Ingram, Zaccheus C.
Ingram, Zaccheus C. Mrs.
Jackson, Henry
Jewett, George B. Prof.
Johnson, Earl
Johnson, Earl Mrs.
Johnson, Orren
*Jones, Thomas
Jones, Thomas Mrs.
Kellogg, H. C.
Kellogg, Eleazer
Kellogg, Horace
Kellogg, Horace Jr.
Kellogg, James
Kellogg, Lyman
Kellogg, Lyman Mrs.
Kellogg, Willard M.
Kellogg, Willard M. Mrs.
*Kellogg, William
Kellogg, William Mrs.
Kellogg, William
Kingman, Cyrus
Leland, John
Leland, John Mrs.
Lincoln, R. S.
Lincoln, R. S. Mrs.
Loomis, Austin
Loomis, Milton
Lyman, John
*Mack, David
Mack, David Mrs.
Marshall, Ansel C.
Marshall, Joseph E.
Mather, William E.
Mather, William E. Mrs.
McMaster, Charles
McMaster, Charles Mrs.
Merrick, James E.
Merrick, James E. Mrs.
Merrick, James L. Rev.
Merrick, James L. Mrs.
*Merrick, William
Merrill, Calvin
Merrill, Calvin Mrs.
Merrill, Harriet O. Miss
Moore, Phebe Mrs.
Munsell, Guy C.
Nash, Charles
Nash, Charles Mrs.
Nash, J. A. Rev.
Nash, J. A. Mrs.
Nash, Luther
Needham, Emory H.
Needham, Emory H. Mrs.
Nelson, Julia C. Miss
Newton, Walter
Palmer, Frederick A.

Palmer, Frederick A.Mrs.
Pierce, Francis A.
Pierce, Francis A. Mrs.
Pomeroy, David
*Pomeroy, David Mrs.
Potwine, Thomas
Prince, Samuel
Putnam, Rufus
Putnam, Rufus Mrs.
Rankin, John
Reed, Thomas
Reed, Thomas Mrs.
Rice, Alpheus
Roberts, Fanny H. Mrs.
Robins, Alva
Robins, Z. W.
Robins, Z. W. Mrs.
Robinson, Ferdin'd Mrs.
Robinson & Ainsworth,
Russell, R. Chauncy
Russell, Emerson
Russell, Emerson Mrs.
Russell, Francis H.
Segraves, Horatio
Shepard, Charles U.
Slate, Jonathan S.
Smith, B. F. Dr.
Smith, B. F. Mrs.
Smith, Cotton
Smith, Timothy
Smith, Timothy Mrs.
Smith, William B.
Smith, William W.
Snell, E. S. Prof.
Snell, E. S. Mrs.
Spaulding, Philip D.
Spear, Ebenezer P.
Spear, Lyscom
Spear, Lyscom Mrs.
Spear, Myrick N.
Stanley, Edward A.
Stratton, Chester Dr.
Stratton, Chester Mrs.
Strickland, William G.
Strickland, Wm. G. Mrs.
Sweetser, Hannah Mrs.
Sweetser, Luke
Sweetser, Luke Mrs.
Taylor, Israel H. Dr.
Taylor, Israel H. Mrs.
Taylor, Stillman
Thayer, Jason
Thayer, Jason, Mrs.
Thayer, Jonathan
Thayer, Jonathan Mrs.
Thayer, Reuben
Thayer, Savannah A.
Thayer, S. A. Mrs.
Turner, Rodolphus
Tyler, William S. Prof.
Tyler, William S. Mrs.
Warner, Aaron Prof.
Warner, Aaron Mrs.
Warner, David S.
Warner, George
Watson, Oliver
Watson, Oliver Mrs.
Wetherell, Leander
Wheelock, Dana
Wheelock, Russell T.
*Whipple, David
Whipple, George A.
Whitney, Simon W.
Williams, Ebenezer
Williams, Enos D.
Williams, E. D. Mrs.
Williams, Frederick
Williams, Orin
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Winter, Jonas H.
Woodman, Geo. S. Dr.
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Chandler, George
Dorman, Roderic
Dunbar, Charles T.
Dwight, Nathaniel Jr.
Gilbert, Wareham C.
Goodell, Asahel
*Hannum, Gamaliel
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Holland, Luther
*Lawrence, Myron
*Longley, Joshua
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CONWAY.
May, Cephas 1

COVINGTON, KY.
Payson, Joseph R. 1

DEERFIELD.
Fogg, Josiah
Stebbins, Evander G.
Stebbins, Moses
Stebbins, Moses Mrs. 4

EASTHAMPTON.
Colton, A. M. Rev.
Colton, A. M. Mrs. 2

ENFIELD.
Fobes, Henry
Smith, Alvan
Woods, Josiah B. 3

GENESEO, ILL.
Godfrey, William B. 1

GRANBY.
Ayres, Rodney
Ayres, Samuel
Barton, James M.
Barton, Phineas D.
Chapin, Philo
Clark, Augustus
Clark, Luke M.
Clark, Spencer
Dickinson, Samuel D.
Ferry, Charles S.
Ferry, Lucius
Montague, Giles F.
Montague, Holland
Patrick, William J.
Preston, John H. D.
Richardson, Oremus
Smith, George
Smith, Jared
Smith, Nelson
Smith, Samuel Jr.
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HADLEY.
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Adams, Benjamin Mrs.

Adams, Joseph
Adams, Levi
Adams, Levi Mrs.
Baker, Esek
Carter, Benjamin T.
Comins, Simon F.
*Cowles, Asa
Cowles, Daniel
Cowles, Daniel Mrs.
Cowles, David S.
Cowles, David Mrs.
Cowles, Elijah
Cowles, Elijah Mrs.
Cowles, Lewis
*Cowles, Lewis Mrs.
Dickinson, Dexter C.
Dickinson, Elihu S.
Dickinson, George
Dickinson, Samuel Jr.
Dickinson, William P.
Dickinson, Wm. P. Mrs.
Granger, Lorenzo N.
Granger, Lorenzo N. Mrs.
Gray, Amos
Gray, Chester
Green, Dorus
Green, Dorus Mrs.
Green, Henry
Green, Linus
Green, Linus Mrs.
Hayward, E. E.
Hibbard, Albert
Hibbard, E.
Hill, Roderic B.
Hooker, Benjamin
Huntington, Theodore G.
Huntington, T. P.
Huntington, T. P. Mrs.
Kellogg, Martin
Kellogg, Martin Mrs.
Kellogg, Stillman
Kellogg, Stillman Mrs.
Lamson, Charles E.
Marsh, Timothy S.
Morton, John A.
Morton, John A. Mrs.
Nash, John W.
Nash, Samuel
Nash, Samuel Mrs.
Osborn, John
Paseo, Theodore
Paseo, Theodore Mrs.
Porter, Eleazer
Porter, Edwards J.
*Porter, Louisa
Powers, Alfred
Powers, Alfred Mrs.
Powers, Samuel
Powers, Samuel Mrs.
Russell, Horace
Russell, Horace Mrs.
Russell, John
Russell, John Mrs.
Russell, Levi
Russell, Levi Mrs.
Sabin, Sherman
Sabin, Sherman Mrs.
Scott, Rufus
Scott, Rufus Mrs.
Shipman, John
Shipman, John Jr.
Smith, Chester
Smith, Cotton
Smith, Cotton Mrs.
Smith, Edmund
Smith, Erastus
Smith, Giles E.
Smith, Horace
Smith, Jeriah S.
Smith, Joseph
Smith, Joseph Mrs.
Smith, R. Wales
Smith, R. Wales Mrs.
Smith, Thaddeus
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Sprague, Joseph G. 1

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Cooke, George Mrs. 2

LEVERETT.

Adams, Alden
Ashley, Marvin
Ashley, Marvin Mrs.
Ball, Orus
Ball, Orus Mrs.
Ball, Silas
Bangs, Howard
Boutwell, Levi
Boutwell, Levi Mrs.
Boutwell, Samuel W.
Clark, William Wells
Cutter, Seneca Mrs.
Dunklee, Hezekiah
Eastman, David Rev.
Eastman, David Mrs.
Field, Alden C.
Field, Alden C. Mrs.
Field, Asa L.
Field, Asa L. Mrs.
Field, Charles H.
Field, Charles H. Mrs.
Field, Harrison
Field, Harrison O.
Field, Harrison O. Mrs.
Field, Moses
Field, Moses Mrs.
Field, Zebina
Fitts, Nathan H.
Frary, Francis
Graves, Elmer
Graves, Walter
Graves, Kellogg
Hobart, Baxter R.
Hobart, Charles D.
Hobart, Peter
Hobart, Spencer
Howard, Baxter
Hubbard, Roswell
Ingram, Elisha
Ingram, Elijah
Kimball, David
Leach, Chester
Matthews, Horace
Moore, Dexter
Nutting, Lucius
Nutting, Ransom
Porter, Cephas
Putnam, Timothy
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Sears, Simon 1

NEW LONDON, CT.

Ford, Emily Mrs. 1

NEW SALEM.

Haskins, Nelson
Hunt, Horace 2

NEW YORK CITY.

Colton, Joseph
Harrington, Samuel
Harrington, Samuel Mrs.
Smith, H. B. Prof. 4.

NORTHAMPTON.

Arnold, W. A.
Baker, Osmyn

Clapp, D. M.
Clark, William Jr.
Clark, William
Dickinson, George P.
Fitts, Elijah B.
Hawks, Charles K.
Hinckley, Samuel L.
Hillyer, Winthrop
Kirkland, Harvey
Parsons, Samuel L.
Shepard, Ashur
Shepard, Henry
Smith, S. M.
Strong, Elisha
Strong, William
Thayer, Justin
Trumbull, James R.
Trumbull, James R. Mrs.
Washburn, Luther I.
Wells, Samuel
West, Joseph I.
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OLEAN, N. Y.

Nutting Truman
Nutting, Truman Mrs. 2

OSKOSH, WISC.

Kellogg, Ansel W. 1

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Aldrich, Asahel
Aldrich, Nehemiah W.
Ballou, Emory
Ballou, Hiram
Barrows, Isaac
Buffum, Thomas
Carter, John
Cook, Olney
Eaton, Calvin D.
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Rankin, Ansel A.
Rankin, Ansel A. Mrs.
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Aiken, Benjamin P.
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PROVIDENCE, R. I.

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SHUTESBURY.

Adams, N. Dickinson
Adams, S. Ward
Dudley, Samuel F.
Fitts, Edward
Howe, Abraham S.
Shores, David 6

SOUTHAMPTON.

Edwards, Elisha 1

SOUTH HADLEY.

Allen, Levi W.
Alvord, Hervey
Bates, Emerson
Burnett, Nelson W.
Clark, Marcellus
Gaylord, Lorenzo
Kellogg, Amos
Lathrop, Paoli
Lyman, George J.
Lyman, Lorenzo W.
Montague, C. Newton
Moody, Hovey
Nash, Thomas M.
Smith, Edmund
Smith, Edmund Mrs.
Smith, Gilbert A.
Smith, Jason
Snow, Sheldon Mrs. 18

SPRINGFIELD.

Brewster, John M. Dr.
Montague, Isaac W. 2

STAFFORD, CT.

Kellogg, Sanford Wells1

SUNDERLAND.

Brown, Sylvester
Brown, Sylvester Mrs.
Clark, Austin L.
Clark, Austin L. Mrs.
Clark, Eliphalet Mrs.
Clark, Sereno D. Rev.
Clark, Sereno D. Mrs.
Cooley, Charles
Crocker, Stoughton D.
Dickinson, Ebenezer P.
Dickinson, E. P. Mrs.
Dickinson, Ransom
Dickinson, Ransom Mrs.
Dunklee, Benjamin F.
Dunlap, Samuel
Dunlap, Samuel Mrs.
Field, Erastus D.
Gaylord, William
Graves, Alden
Graves, George W.
Graves, Hubbard
Graves, Hubbard Mrs.
Graves, Timothy
*Grover, Josiah
Gunn, Isaac S. H.
Hemenway, B. C. Mrs.
Henderson, Horace
Henderson, Horace Mrs.
Hubbard, Alanson
Hubbard, Alanson Mrs.
Hubbard, Ashley
Hubbard, Ashley Mrs.
Hubbard, Avery D.
Hubbard, A. D. Mrs.
Hubbard, Claudius B.
Hubbard, C. B. Mrs.
Hubbard, Kelita
Hubbard, Martin L.
Hubbard, Moses 2d
Hubbard, Moses 2d Mrs.
Hubbard, Rodolphus B.
Hunt, James
Hunt, Melzar
Hunt, William
Hunt, Zebina M.
Ludden, Parmenas
Miller, Washington
Montague, Albert
Montague Albert, Mrs.
Montague, Warren
Russell, Austin
Russell, Emmons
Russell William W.
Russell, Wm. W. Mrs.
Sanderson, Eli
Sanderson, H. F. Mrs.
Smith, Austin
Smith, Austin Mrs.
Smith, Brainard
Smith, Brainard Mrs.
Smith, Elihu
Smith, John M.
Smith, John M. Mrs.
Smith, Nathaniel
Smith, Nathaniel Mrs.
Smith, N. Austin
Smith, N. Austin Mrs.
Trow, Nathaniel G. Dr.
Warner, James R.
Warner, Levi P.
Warner, Levi P. Mrs.
Whittemore, D.D. & J.Jr.
Wiley, Dolly F. Mrs.
Wiley, Ebenezer
Wiley Ebenezer Mrs.
Wiley, John
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Sanford, John Rev.
Sanford, John Mrs. 2

WARE.

Gilbert, George H.
Gilbert, G. H. Mrs.
Phelps, Samuel H.
Rice, Joel
Sage, Orrin
Stevens, Charles A. 6

WESTBOROUGH.

Smith, Charles H.
White, Samuel N.
White, Sam'l N. Mrs. 3

WILLIAMSBURGH.

Bartlett, Newman W.
Graves, Levi M. 2

WILMINGTON, VT.

Smith, Newman W. Dr.
Smith, N. W. Mrs. 2

TRANSACTIONS

OF THE

Hampshire Co. Agricultural Society,

DURING THE YEAR

1855.

PREPARED BY THE SECRETARY.

AMHERST, MASS.:
PRESS OF WILLIAM FAXON.
1855.

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BY-LAWS.

ART. 1. The OFFICERS of this Society shall be one President, six Vice Presidents, a Secretary and Treasurer, and an Executive Committee of seven, to be chosen by ballot, at the annual meeting, and to serve one year, and until others are chosen in their stead.

ART. 2. The PRESIDENT shall preside at all meetings of the Society, and in his absence, one of the Vice Presidents.

ART. 3. The SECRETARY shall keep a true record of all the doings of the Society.

ART. 4. The TREASURER shall keep an account of all monies received into and paid out of the treasury. His accounts shall always be open to inspection by any member of the Society, and he shall give Bond in such sum as shall be designated by the Executive Committee, for the faithful discharge of his duties, and he shall make an annual report, previously audited by the Executive Committee.

ART. 5. It shall be the duty of the EXECUTIVE COMMITTEE, to call special meetings of the Society; to designate the time and place of annual exhibitions, and make all necessary arrangements therefor; to appoint Sub Committees for examination and to award premiums; and to have a general supervision over the funds and affairs of the Society. The President and Secretary shall be members of the Executive Committee.

ART. 6. The ANNUAL MEETING of the Society shall be held on the last Wednesday of December, each year, and twenty members shall constitute a quorum to do business.

ART. 7. Notices for all meetings of the Society shall be signed by the President and Secretary, and published in some newspaper in the County, or circulated by handbills, or in any other manner that may be designated by the Executive Committee.

ART. 8. Any male person may become a Life Member by paying to the Treasurer the sum of five dollars. Any lady, by payment of two dollars and fifty cents, may become a Life Member.

ART. 9. Minors, whose father and mother are members of this Society, and to whom premiums may be awarded, shall be paid the full amount of the premiums awarded. And in cases where the father only is a member, and has paid more than five dollars to the Society, his minor children shall be paid the full amount of the premiums awarded to such minors.

ART. 10. All Premiums not called for within six months after the same are awarded, shall be paid into the treasury and be considered as presented to the Society.

ART. 11. These By-Laws may be amended or altered by a majority of the members, present at any legal meeting.

Transactions.

The present year has been one of prosperity and progress. The funds of the Society have constantly increased and the interest in its welfare has extended. Although the Society has received, for the past four years, sixty new members annually, yet, this year, there have been sixty-five new members, so that the whole number, including ladies, is now 874. May the Society, in two or three years, have a fund of four thousand dollars, and count a thousand members.

Through the courtesy of Hon. Edward Dickinson, member of Congress from this District, the Society was supplied with forty volumes of the U. S. Patent Office Reports, both Agricultural and Mechanical, to be awarded in gratuities.

One hundred copies of the "Agriculture of Massachusetts, as shown in the returns of the Agricultural Societies for 1854," and also the Second Annual Report of Charles L. Flint, Esq., Secretary of the Massachusetts Board of Agriculture, have been judiciously distributed.

Members, who applied for valuable seeds, received from other countries through the Patent Office at Washington, have been liberally supplied.

The annual Exhibition was well sustained in all its departments, and exceeded its predecessors in many essential particulars. The farmers turned out en masse, and have good reason to be gratified with their show of stock, of agricultural and horticultural and dairy products, with their plowing and their horses. All seemed in the best spirits, and doubtless

returned to their homes, satisfied with what they saw and heard, and with judiciously formed plans of future improvement.

As the exhibition has become from year to year more extensive, more attractive and more instructive, the want of a suitable hall has been felt more and more. The public spirit of the inhabitants of Amherst will doubtless soon furnish that enterprising town with a suitable Town hall, which will also accommodate our annual exhibition, and secure its continuance at Amherst.

ORDER OF EXERCISES AT THE CHURCH.

MUSIC BY THE SOUTH DEERFIELD BAND. PRAYER BY REV. PRESIDENT STEARNS.

HARVEST HYMN,

Composed for this occasion, by H. C. Hayd'n, *of Amherst College.*

1. God of the harvest—thou hope of the sower,
   Humbly we bow at thine altar below;
   Thou of the rain and the dew art bestower,
   Sunshine and smiles from thy presence do flow.

2. God of the household—vouchsafe thy protection,
   There let affection and peace ever reign,
   Give young and aged thy gracious direction,
   Free them from sorrow, and soothe every pain.

3. God of our Nation—thou source of our gladness,
   Shall not thy banner forever be love?
   Break ev'ry fetter, wipe each tear of sadness,
   Guide us to glory—receive us above.

4. God of creation—O hear our petition,
   Pity our weakness and fill us with praise,
   Send us the spirit of humble contrition,
   Open the heavens, thou Ancient of days.

ADDRESS BY CHARLES L. FLINT, OF BOSTON.

ODE,

Written for this Anniversary, by J. E. Twitchell, *of Amherst College.*

1. The God of bounteous harvest praise,
   The God of truth and love;
   Who scatters blessings o'er our land,
   And reigns supreme above.

2. He makes the teeming fields rejoice,
The hills and valleys sing;
And flocks and herds reëcho forth
The praises of their King.

3. He sends the cool, refreshing rain,
The rich Autumnal shower;
And waving fields of golden grain,
But magnify His power.

4. He feeds the creatures of His hand,
With bounties rich and rare;
And 'round the farmer's cheerful hearth,
Shows His protecting care.

5. Then let us all unite as one,
To sing His glorious praise;
Join every heart and every voice,
In loud and cheerful lays.

During the delivery of the address the Church was crowded, and the close attention of the audience evinced the satisfaction with which it was received.

The procession marched to the Amherst House, where a bountiful entertainment had been provided by Mr. Howe.

A blessing was invoked by Rev. Dr. Woodbridge of Hadley. The company proceeded to a discussion of the good things before them, and after spending some time in that very pleasant exercise—

The President remarked that he was happy to meet so many members and friends to-day—appropriately alluded to the death during the past year of Cotton Smith, one of the Vice Presidents, and proposed—

The health of our late President, Alfred Baker, Esq. of Amherst.

Mr. Baker expressed his thanks for the compliment.

The President then gave—

His Excellency the Governor—Though not called from the plow to his honorable station, the farmers of this community are most happy to receive a *gardner* as their guest, and they feel assured that the successor of the Winthrops and Dudleys, of blessed memory, will rejoice to behold with his own eyes the prosperity of Massachusetts.

Gov. Gardner eloquently responded and closed by wishing

Prosperity and success to the agriculture and agriculturists of the county of Hampshire.

The President then introduced His Honor Lieut. Gov. Brown, who spoke of the excellence of the exhibition, and

closed with a happy allusion to the beautiful scenery with which Amherst is surrounded.

The President then read the following, which he said had been handed in by a lady:

Rev. Dr. Hitchcock—The companion of Nature, the favorite of Science, the friend of the Soil and the Husbandman—though he has resigned the *Presidency* he still keeps his seat in the *cabinet*, where may he long remain.

Mr. Boyden stated that Dr. Hitchcock was necessarily absent from town.

The President then introduced Rev. Dr. Stearns, President of Amherst College, who spoke of the ennobling calling of the farmer, and closed with the following sentiment:

The noblest work of God, and the noblest to improve—men—may the time come when they will all show the features of their paternity, and all acknowledge each other as brethren.

The President then read the following:

Professor Clark—He gives us a substitute for the philosopher's stone, for the soil prepared by *his* hands yields us *golden harvests*.

Prof. Clark briefly responded, and urged the farmers to avail themselves of instruction in matters pertaining to their calling—agricultural chemistry, geology, &c.

The President then read:

The Orator of the Day—Like a good *Flint* he never refuses fire.

Mr. Flint humorously responded, and gave the following sentiment:

The Hampshire Agricultural Society—May it always have the smiles and encouragement of the ladies.

Hon. Amasa Walker, of North Brookfield, was next introduced, and urged the importance of farmer's clubs.

The President then gave

The State of Alabama.

Mr. George Montague responded, and proposed

The Homes of New England—The abodes of industry, virtue, intelligence and happiness—their light shines in every land—their voice is heard throughout the world.

ADDRESS.

Mr. President, Ladies and Gentlemen of the Hampshire Agricultural Society :

We have met, to-day, to do what we can to advance the cause of agriculture. Coming together from all parts of your county—many of us from more distant sections of the State —we desire to obtain from each other the knowledge, which different minds, working in different localities and upon different systems of observation and practice, may impart, and, thus, from a free and unrestrained intercourse, gather hints and suggestions for the future.

But this festival is not useful for these purposes only. It has another and an equally important object. It is designed to bring together all those interested in the cause for which we labor and to unite them by all the bonds, which are created and strengthened by social intercourse. The day on which we meet is eminently a social occasion—a day of relaxation as well as improvement.

The time and the place, then, seem not to demand, not even to admit of the exposition of any abstruse scientific theory, or the discussion of any question which would require a close and wearisome attention. It seems more appropriate that we should pause here, for a moment, to look back upon the space already passed; and, then, turning to the heights which yet lie before us to be surmounted, consider what path we shall take, and what strength we must put forth to meet

our yet distant goal. Such a survey, I think, will be found to be both interesting and instructive.

I had proposed to pass over those countries where agriculture may be said to have had its birth, and, beginning with times of which we have an authentic history, to introduce you to a Greek farm house, as it existed twenty-five centuries ago, within sight of the most civilized and highly cultivated city then on the globe—to inquire what its inmates are about, what they know of their calling, be it more or less than the aggregate of our own knowledge,—to lead you, perhaps, to sympathize with their toils, their struggles and their joys, and, leaving them with a few practical hints for our own improvement, to trace briefly the progress of agriculture to our own times, showing in what we have improved, if we have improved at all, and pointing out the present wants and the future prospects of agriculture in New England.

Time, however, will not permit us to dwell at any length upon the early history of this art, as I wish to call your attention more particularly to our own times and our own country.

In the early ages of the world, agriculture was honorable and dignified enough to engage the attention of men of the highest rank and greatest talent. The history of Greece shows us numerous examples of this. Her great men are associated in our minds with glorious struggles for liberty, or with such writings as will never cease to command the admiration of the world. The scholar of all ages has loved to contemplate both the men and their works, but it has too often been forgotten, that they found a far higher satisfaction in the cultivation of the soil and the improvement of agriculture, than in the management of armies and the intrigues of the court. Let us turn from the contemplation of their public life and see them at home.

The farm house stands well back from the road, and we wind up an avenue of silver firs or other graceful trees and find a building, large but by no means elegant or beautiful.

We are met at the door by a plain, unostentatious man,

who, with true-hearted hospitality and manly pride, invites us to examine his house, his barn, his farm and his stock.

Entering the house and passing on through the hall, without stopping to examine the bags of grain and boxes with which it is filled, we find our hostess engaged in spinning or carding, tending the children and directing the servants. In the kitchen the maid has her pets as well as her mistress, and likes to see them under her eye, and the ducks and geese are racing in spirited emulation on the floor, while a pet pig or two adds variety and interest to the monotony of this department.

The first object, that attracts our attention in the yard, is the hen coop. Here the Greeks are at home. These barn door fowls were originally imported from India and Media, and for many years importations were made from Italy, Sicily and Egypt. The coops are so constructed as to admit the smoke from the kitchen, which was supposed to be agreeable to hens.

On the other side of the yard are some of the finest pigs the world ever saw. It is doubtful, indeed, whether the Suffolks themselves equal the long and beautifully built pigs of Grecian history. Speaking of their value, we are told that a neighboring king lately paid no less than a thousand dollars for a single imported hog. The Greeks were more interested in the improvement of stock, than the farmers of Massachusetts are. Merinoes were sometimes bought in Spain, at a cost of twelve hundred dollars apiece. Mules and oxen were commonly used for the plow, the horse being too costly and used mostly for the army and for pleasure.

Passing along the terraced walk to the fields, we notice the apple, the pear, the cherry, the plum, the quince, the apricot, the peach, the nectarine, and many kinds of nuts, as well as figs, lemons, citrons, date-palms, and almonds.

There is evidence, on every hand, of a high and perfect cultivation. Looking for the means by which it was brought about, we behold the awkward, old wooden plow, so constructed as to require great physical strength to keep it in the

earth. The plow, in the earliest ages, was extremely rude and simple, hardly more than a wedge, indeed, though in the time of Moses, it was drawn by a yoke of oxen and had a coulter and a share; and among the Greeks and Romans it became still more complicated and powerful, being furnished with wheels. The ancients seem to have had nearly all the varieties of this implement, which are known to this day, though not in so great perfection. It is somewhat remarkable that the plow now used in parts of France and Spain, is similar to that in use among the Romans in the time of Christ, and is called the Roman plow. It consists of a beam, a share and a handle, and rather pushes the soil each way, than turns the furrow, and on very light, sandy soils, serves at least, to mellow them. The plow of Syria is very light and can easily be carried in the hands. That of India is often drawn by a man or woman. So is the plow used in some parts of Italy, which, says Dr. Clark, only differs from the most ancient plow of Egypt, as we see it represented upon images of Osiris, in having a double, instead of a single coulter. The Irish plow, even so late as the middle of the seventeenth century, was drawn by the tails of horses, till parliament interfered to prevent it. It was made of wood. "From want of a proper mould board, it required the constant application of the plowman's foot to keep down the furrow slice; as the plow advanced, it was only partially turned over, and without the assistance of the foot, it did not occupy its proper place. This, as may be supposed, was very laborious to the plowman who had only one leg to hop upon, the other being constantly employed, as we have stated, in kicking—while his hands and trunk had severe labor in pressing the plough downwards towards the muzzle, contrary to its upward tendency."

These instances are mentioned to show that many nations still use plows, no better than those of the Greeks, some of them being simple copies of the ancient plow.

The Greeks usually plowed three times before planting; sometimes sub-soiled, and often mixed different kinds of soil, as sand with clay. They composted with great skill, saving

everything with the most scrupulous care. They adopted a biennial system of rotation, of fallow and grain, which is the system still pursued in many countries in the South of Europe. They also paid great attention to the selection of the best seed for the succeeding crops. So far as all the essential practices of agriculture are concerned, their cultivation was of a high order. But it must be confessed that their agricultural implements would but ill compare with ours, in their admirable adaptation to the purposes for which they were intended.

The names of not less than fifty agricultural writers have come down to us, but there are only a few whose works have been preserved. I have selected one or two extracts, as an illustration of the general character and tone of the whole. "No man," says Xenophon, "can be a farmer, till he is taught by experience. Observation and instruction may do much, but practice teaches many particulars, which no master could ever have thought to remark upon." I find a curious prescription for frightening a tree into bearing.

"Gird up your loins, roll up your sleeves, then take hold of an axe or mattock, and, being full of wrath, approach the tree as if intending to cut it down. Let now some one come up to you and beg you not to cut it down, pledging himself at the same time that it will do better next year. Then you, appearing to yield to this man's request, will spare the tree, which after this will become a great bearer."

Turning now to Rome, we find that agriculture was as much honored there, as in Greece, being regarded as one of the noblest occupations of man. Commerce, indeed, was looked upon as degrading, in the earlier ages of Rome, and war and agriculture engaged the whole attention of the Roman citizen, the farmer thinking himself able both to till and to defend his little farm. That was the age when the highest praise, that could be bestowed upon a man, was to call him a good farmer. He was thought to be highly honored, who was so commended. "The earth took pleasure" says Pliny, "in

being tilled by the hands of men, crowned with laurels and decorated with triumphal honors."

Four hundred and fifty-nine years before Christ, the farmer Cincinnatus left his plow to assume the Dictatorship, amidst the shouts and exultation of Rome; raised an army and conquered a powerful enemy; and, at the end of sixteen days, returned to his little farm and resumed his work. So with many other men distinguished in Roman history. Under such influences, fostered and encouraged by practical and patriotic men, agriculture reached a high degree of perfection, and it is not too much to say, that this progress has exerted a powerful influence on all subsequent times.

We find, accordingly, that improvements were made in agricultural implements—some changes especially in the plow. It consisted, as intimated above, of a beam, to which the yoke was attached; a handle with a cross piece by which the plowman held; a share fixed into a share beam, two mould-boards, a coulter, and sometimes a wheel which could be used or not, at pleasure. The Romans had, also, spades, hoes, rakes and harrows; yet even with these improvements the farmer's work advanced but slowly; thus it took two days to plow three-fourths of an acre, the first time, and one to plow it, the second.

The distinction of soils and their adaptation to particular crops was well understood, and the farmer paid special attention to the enlargement and improvement of his manure heaps. Lupines and clover were sown to plow in green. The stubble was often burnt for the ashes.

The most common crop among the Romans was wheat, but they also raised rye, barley, oats, flax, lupines, millet, peas, beans and turnips. Much ground was devoted to the cultivation of the grape and the olive also.

The terse and sensible maxims of the Roman agricultural writers are worthy of remark, and many of them will be found as applicable to us, as to those for whom they were written. "What is good tillage?" asks Cato, the great Orator, Politician and General. "To plow!" he answers. "What is the

second point? To plow! The third is to manure. As to the rest, sow abundantly, select your seed carefully, and keep the crop free from weeds through the season."

"Nature," says Varro, "has shown two paths which lead to a knowledge of farming—experience and imitation. Farmers, hitherto, by experiments have established many maxims and their posterity generally imitate them; but we ought not only to imitate others, but make experiments ourselves, not directed by chance but by reason." In the collection and preparation of manures the Romans seem to have excelled, and there is no doubt it was made a prominent subject of study among them. The excrements of birds were held in the highest esteem, and the utmost care was taken to preserve and apply them judiciously. A compost heap was built near the house, in the form of a bowl to retain the water from the sink and the wash from the house, protected by a covering of brush or shrubs, and the manure of the stable and barn-yard was allowed to remain and ferment a year before being applied. A top dressing of guano, or the manure of birds ground fine, was thought to have a wonderful effect in reviving a sickly crop, and it was often applied to wheat. They hoed and stirred the soil frequently about growing crops, and horse-hoeing was not very uncommon. Wheat was sometimes fed off, when young, to benefit the crop.

When any remarkable crop was cultivated, a statement was not unfrequently made of it, though I find no very good evidence that it was submitted to a committee of an agricultural society, and it is probable that the farmers of that day did not require the stimulus of a premium to awaken enterprise and competition. It is stated by Pliny that four hundred stalks of wheat, all grown from one seed, were sent to the emperor Augustus; and at another time, three hundred and forty to the emperor Nero, from Byzantium, in Africa, and the statement made of the soil was, that "when dry, the strongest oxen cannot plow it, but after a rain, I have seen it opened by a share drawn by a wretched ass on the one side and an

old woman on the other." Not a very "strong team," one would suppose, for a modern subsoil plow.

Special attention was paid to the planting of trees to protect cultivated fields from high winds and storms, a practice much needed with us, since the indiscriminate destruction of forest trees in New England. "Men should plant while young," says Pliny, "and not build till their fields are planted, and even then they should take time to consider and not be in too great haste. It is best, as the proverb says, to profit by the folly of others." This advice should lead us, at least, to give more attention to the planting of orchards and fruit trees.

Great attention was paid to the breeding of fine stock, particularly oxen, horses, sheep and goats, though their scale of points would seem to be open to many objections from the modern breeder, for Palladius says that "bulls should be tall, with very large limbs, of a medium age, rather young than old, of a stern look, small horns, a brawny and huge neck and a confined belly." The points which Columella gives for cows, however, show much careful and discriminating observation and judgment, for he says they should be of "a tall make, long with very large belly, very broad head, eyes black and open, horns graceful, smooth and black, hairy ears, straight jaws, very large dewlap and tail, and moderate hoofs and legs."

Columella prescribes a peculiar and curious treatment of oxen in the following words: "After oxen get through plowing and come home heated and tired, they must have a little wine poured down their throats, and, after being fed a little, led out to drink, and if they will not drink, the boy must whistle to make them."

Virgil says the breeders of horses and oxen should pay special attention to the build of the female, and that she should be large in all her parts. In selecting oxen for work, Varro says they should have "spacious horns, rather black than otherwise, a broad forehead, wide nostrils, a broad chest and thick dewlap."

Mules were also worked to considerable extent, while the raising of poultry received a large share of attention, and was made a prominent source of pleasure and profit. There are few departments of modern farming, indeed, which were not carried to great perfection by the ancients.

It is truly a matter of surprise, and the more astonishing the more we contemplate it, that with all the improvements of the moderns in every other art, the modes of communication, the application of machinery to shorten labor, the discovery of printing and a thousand other wonders in the arts and sciences, the ancients, in all the practical details of farming, seem nearly to have equalled us, and we are led to inquire wherein we have excelled them. The answer is brief and simple. What we have done more than they, is chiefly in the introduction of a great number of plants into cultivation, which has enabled us to perfect the system of rotation, which was necessarily limited and interspersed with fallows by them, and even by the moderns, till within the last two centuries. Many of these plants were consequent to the discovery of this continent. We have, also, to some extent brought the sciences to bear on the perfection of agricultural implements, by which we have economized the physical strength both of man and beast. The investigations of science into the peculiarities of different soils, and the better understanding of the nature of plants and the soils adapted to them, have done something and are destined to do more for farming. What the ancients did by guess, the moderns may do with the certainty of demonstration.

We should derive neither pleasure nor profit from the attempt to trace the progress of agriculture through those dreary times when Rome, absorbed in luxury and enervated by vice, was gradually yielding to the northern conqueror; or later, in the darkness of the Middle Ages, when learning hid itself in the gloomy walls of the cloister; when every science and all the arts of peace withered and perished among men; when the poor menial toiled without knowledge or hope, and the very earth, as if to revenge the neglect of her children, some-

times refused to give them bread, leaving thousands to die in misery and starvation.

In modern times, England first claims our attention. She began the career of improvement and has continued it with a spirit and intelligence, which have made her fields the great model farm of the world. France, Belgium, Holland and Flanders followed, forced on by the necessity of sustaining a crowded and fast increasing population.

The first treatise on farming published in England was by Sir Anthony Fitzherbert, in 1534; followed by another, by the same author, in 1539. With these early attempts, began the first germs of improvement in the community. About the year 1652 appeared the *Improver Improved*, a work full of judicious maxims and sensible advice. Soon after this, clover and turnips were introduced, and made a complete revolution in the agricultural system of England.

After the efforts of Jethro Tull with his drill husbandry, and his thorough tillage as a substitute for manures, at the beginning of the last century, there was little advance in agricultural science, with the exception of great attention paid to live stock by Bakewell and others, till the Board of Agriculture was established in the year 1793, under the charge of Sir John Sinclair. A general interest in agriculture was then awakened and a systematic effort made to gain and diffuse useful knowledge of farming. Men interested in agriculture, in the different parts of the kingdom, became acquainted with each other, and the benefits of associated effort were soon most sensibly felt. Science was brought in to secure the judicious investment of capital, and these efforts have been so steadily continued that the Englishman now follows farming because he loves it and understands it, and because his thoughts and feelings are centred in it.

The first settlement of New England was under circumstances of peculiar difficulty. Leaving a country, at that time, the best cultivated on the globe, for a region wild and for the most part uncultivated, wholly unacquainted with the climate and the soil, it was not to be expected that the early settlers

would make rapid progress in agriculture. Casting behind them all that was dear to their hearts from early childhood, and consecrated by tender association, they were to begin life anew. Their former experience could not serve them much. For months after landing, they had no beasts of burden to share their toils, and the woodman must work in the two-fold capacity of teamster and team. Afterwards, when a few cattle were obtained from England they were poorly fed on meadow hay and were liable to fall a prey to the wolves and the Indians. The price was so high that it was impossible for a poor man to procure them. A long time after the pilgrims had established themselves in the country, a two year heifer sold for twenty-five pounds sterling. It is a curious fact that a red calf was much cheaper in those early days than a black one, because the wolves mistaking it for a deer were much more likely to kill it.

While stock was so high, a quart of new milk could be bought for a penny and four eggs at the same price.

The difficulty of procuring proper agricultural implements was an additional obstacle to improvement. No metal could be obtained but Taunton iron, made of bog ore, very brittle and liable, at any moment, to break and put a stop to a day's work. Steel was not then to be had.

On landing, the pilgrims found nearly all the plants then cultivated or raised as food by the Indians, such as corn, beans, pumpkins and squashes.

They were indebted to the Indian women for many hints as to the modes of farming adapted to the new circumstances in which they were placed. These women, whose patient and meek endurance would seem to have entitled them to a better fate, were compelled to do all the hard and thankless work, which the limited wants of their families required. All the farming fell to their lot, while the hunting and fishing was the sport of their husbands and sons, though, after the fish were caught, they, poor creatures, had to carry them home, often to the distance of miles.

From them the settlers learned the use of corn, and the

manner and time of planting, weeding and shelling it. They dug small holes about four feet apart, sometimes using an instrument, which seems to have answered the purpose of a shovel and a hoe, and sometimes with nothing more convenient than large clam shells. Into each of these they usually put a horse-shoe crab, and sometimes two, and planted four kernels upon it, covering the hills with the same instrument with which they had dug the hole. After the corn was up, beans were planted in each hill and were supported by the corn.

In the interior, three or four small fishes served the purpose of a fertilizer. The practice of using any such materials was not universal. They were neat and clean in their cultivation, much more so than the settlers. Not a weed was allowed to grow, and they took special care to guard against the destruction of the corn by insects and birds. The custom of hilling corn for its support was so general among the Indians, that to this day, the spots which they cultivated may be found in all parts of the country. This custom was of course imitated by the colonists, and has been continued till within the last few years, as it still is by a few who choose to do so because their fathers did. It is thought by some, however, that the corn is not supported by it, but on the contrary, that it is more liable to be swept over and broken off by storms when hilled, and cannot erect itself so readily as with the flat culture. A very successful experiment was lately made by spreading and plowing in a few loads of stable manure, after which the ground was furrowed four feet apart, and a small handful of concentrated manure put in the bottom of the furrow, on which the corn was dropt, leaving the top of the hill a little below the surface of the ground. The first hoeing raised it slightly, and the second or third made it perfectly level with the surface.

The picture of the farming of the Indians, which was the model of that of the colonists, would not be complete without a brief allusion to their mode of storing the products of their labor. The women dug large holes in the earth and carefully lined the sides with bark. Into these holes they threw the

corn and beans, after having dried them in the sun, and covered them up level with the surface of the earth. There they were well preserved through the winter. These excavated barns were concealed by the women from their lazy husbands, lest they should eat up all they had; yet however carefully all this was done, the hogs of the colonists sometimes unhinged their barn doors and helped themselves to the contents. One of these Indian barns was discovered by the pilgrims, at the time their granary was reduced so low as to contain only five kernels of corn to each individual.

Another plan of providing for their winter supply, was by making large boxes, shaped a little like barrels, of a kind of wicker-work. These barrels were kept in the wigwam for the more immediate use of the family.

This brief sketch of the farming in the early days of the colony, is sufficient to show it to have been rude in the extreme, and attended by hardship and trial to which we are happily strangers.

We may well imagine the surprise of the simple children of nature at the first sight of a plow. It was a mystery to them. They wanted to see the instrument work. It tore up more ground in a day, than all their clam-shells could scrape up in a month, and looking at the coulter and share and seeing them to be of iron, they told the plowman, if he was not the devil himself he was very much like him.

The first sight of a ship, you will recollect, had previously caused them even greater excitement. To them it was a floating island; its masts were nothing but trees; its sails were clouds; its discharge of guns was thunder and lightning, but, as soon as the thunder and lightning ceased, they pushed off their canoes to go and pick strawberries on the island.

Slowly but gradually the little colony advanced, yet there were but few intelligent cultivators like Endicott and Winthrop, and for the most part agriculture was in a state of extreme depression. No enterprise marked the people engaged in it, no spirit of inquiry gave it the charm of interest, no active minds were devoted to its elevation and improvement. The

farmer planted corn where he could no longer raise wheat, and when, by an ignorant and wretched system of exhaustion, his soil was too poor for corn, he sowed barley or rye, and when he could no longer raise rye he planted beans, and then complained that he could raise nothing but beans!

He had no love or respect for his calling. He was indifferent to selecting good breeds of stock and the best agricultural seeds, and the consequence was, that he had poor and miserable cattle, poor and miserable horses, and ideas poorest and most miserable of all. These would seem to be good reasons for the depression of agriculture, but in addition to all this, the farmer often affected to despise all intelligent cultivation of the soil, and not only followed religiously the example of his fathers, but advised others to do the same, thus transmitting to us in the line of succession the very practices, which his fathers had learned from the barbarous and uncivilized Indian!

A few years after the Revolution, things began to wear a brighter aspect. The benefits of combined and associated effort were seen and felt by the few, who were in advance of the age.

The Massachusetts Society for the Promotion of Agriculture, was established in 1792, a similar one having been established in Philadelphia, in 1784, followed by a voluntary association in New York, in 1791, which led to the establishment of an incorporated society there in 1793. These societies were managed by men of the most ardent and self sacrificing patriotism, but owing either to the state of the times, or to their defective and inefficient organization, they failed to excite any spirit of emulation in the community. Their chief work was the yearly publication of a book. The premiums which they offered, could with difficulty be disposed of, and not one it is said, was paid from the treasury of the Massachusetts Society, previous to 1811. The plowing match which the Society instituted at Brighton, in connection with its exhibition, was started not with any idea of improving the plow, but solely to try the strength and docility of the oxen. The plow

maker happened to be there. He had his eye upon it. He began to think, and from that time to this a vast amount of scientific knowledge has been brought to bear upon this implement and with results which ought to put to the blush the prejudices of those, who declaim against the application of systematic knowledge to agriculture.

Some new organization seemed to be needed, something to seize upon and enchain the interest of the farming community; something to excite their emulation, and lead them to important and permanent improvements.

This new organization was found in the county societies, the first of which was incorporated in Middlesex, in 1803, having existed as a voluntary association, from the time of its institution, in 1794. The Berkshire Society was established in 1811, in the midst of opposition so determined, as to call down upon its projector the ridicule of all classes of society.

Having much difficulty the second year of its existence for want of funds, the young Berkshire Society applied for assistance from the ample and unappropriated funds of the State Society, and received from its President, John Adams, this significant reply:

"QUINCY, 16 Sept. 1812.

You will get no aid from Boston. Commerce, literature, theology, are all against you; nay medicine, history and university, and universal politics might be added. I cannot, I will not, be more explicit."

Gradually, however, the feelings of the people were enlisted in their favor, premiums were offered and awarded, and a large gathering from all parts of the county, increasing rapidly from year to year, gave evidence that something had reached the heart of the community. Under the auspices of the government which soon came to the aid of these societies, such an impetus was given to the improvement of our agriculture, that within the last forty years the entire aspect of the State has been changed.

If any one were disposed to doubt this improvement, we need only point to the number of acres of waste and unim-

proved lands in all parts of the State, which have been reclaimed to fruitfulness and beauty; to the noble farms whose products have been doubled and trebled within the last twenty years; to the number of farms once mortgaged and overgrown with weeds and bushes which choked the very walls, now cleanly cultivated and productive; to the whole smiling aspect of the State, wearing as it does, the legible marks of the enterprise, the energy and intelligence of its inhabitants.

I have made a computation based on the valuation of 1850, to ascertain how long it will take, at the present rate of progress, to bring under cultivation all the waste lands in the Commonwealth. It appears from official statistics that twenty four thousand acres of waste land are annually made capable of cultivation by the reclaiming of meadows, the drainage of swamps &c. Now, at that rate, upon which I think we may safely calculate, considering the increasing population and wants of the State, and the greatly increased interest felt in the subject, it will take less than thirty years to bring all our waste and unimproved land, capable of use, into cultivation.

This does not, of course, include some two hundred and fifty-eight thousand acres, most of which is wholly incapable of improvement.

I am less familiar with this section than with many other parts of the State, but from much observation during the present season, I think I am safe in saying that the amount which has this year been brought from comparative waste cannot fall short of that of any previous year. There is a deep and growing conviction in the minds of farmers, that these will be the most valuable and the most profitable lands they can own. But apart from the expectation of any pecuniary profit, there is a natural and noble sentiment which impels many an enterprising farmer to carry on and perfect these improvements, and when he has accomplished his work, he feels that he has added something to the real wealth of the world. There is the fertile field itself continually proclaiming the knowledge and enterprise of its owner, and rewarding him every moment for his care and energy, for it looks up to

him as, in some sort, its creator. Such an investment gives him, in addition to its large per cent. interest, a sure and permanent source of satisfaction.

We have seen what progress has been made in practical agriculture, and the effect which this progress has had on the aspect of the State. It would not be fair to ascribe all this improvement to mere physical strength and energy. Within the last few years, agricultural knowledge has been systematized, so as to be made available in its application, and herein, as we have seen, consists, in part, our superiority in agriculture over the ancients.

Science has unlocked the subsoil, discovered its absorbing power and exposed it to the air; it has made known the value of concentrated manures and enabled us to tell the true from the false; it has laid open to us the nature and structure of plants, disclosed in them a system for the assimilation of food, analogous to the organization of the animal and equally wonderful. At the same time, it has told us just what food the plant requires, and what part of this food is taken from the air and what from the soil. Our implements of husbandry, also, and our breeds of cattle have not been neglected by it. Thus science, aided by the practical knowledge derived from experience, has vastly accelerated the progress of agriculture. I do not refer to mere theory and its deductions. I speak only of the application of mind to practice, and the investigations of men, who, to early practical knowledge of the details of farming, unite a sound knowledge of the true science of agriculture; who, not pretending to revolutionize farming or to make it a pastime, are modestly investigating the composition of soils and plants, of animals and manures, and who study to make their investigations of practical value.

But notwithstanding the advance which has already been made, much—very much—yet remains to be done. The farmers and those immediately dependent upon them, constitute a very large proportion of the population of the State. When they are prosperous all other classes must share their prosperity. Thus the farming interest has a right to call upon

all to aid it in the development of the resources of the soil, and, by the aid of systematic knowledge founded on a basis of unimpeachable facts, to direct its industry into the most proper channels. I know of no better means of advancing practical agriculture than the formation and energetic support of agricultural societies of various kinds. To them we are to look for improvement in the science and practice of agriculture. They bring men together engaged in the same pursuits and striving for the same object. All hearts beat in unison, and men meet to learn and to communicate, to observe and to show. By far the largest part of our most valuable practical knowledge is gained in our intercourse with our fellow men. Knowledge acquired in this way is as much more effective than knowledge drawn from books, as the impressions made by the human voice, and the human soul, speaking in it, are more effective than those made through the eye.

The government very wisely encourages these associations, paying annually the liberal sum of more than ten thousand dollars to be distributed in premiums, with the simple condition that every agricultural society which shall receive this bounty, shall offer annually such premiums and encouragement for the raising and preserving of oaks and other forest trees, as they shall think proper and best adapted to perpetuate within the State an adequate supply of ship timber.

Yet with all the great and acknowledged advantages of the county societies, their meetings must necessarily be unfrequent. Farmers live scattered all over the country, on every hillside and in every valley. They are isolated from each other. They cannot act in concert and harmony. The merchant meets his fellow merchant to discuss the state of trade, to buy and sell and to keep up with his own business. He studies the fluctuations of the market with the same care and eagerness, that the scholar studies his books.

But the town meeting is too often the only place, where the inhabitants of a town assemble for a common object. It is too often the case that neighbors have but few social ties, if they happen to worship God at different altars. I ask you all

if this is right? Does it become us as townsmen? Does it become us as christians?

The farmer needs some system by which all the improvements in his calling may be instantly brought to his notice; by which he may learn as early as possible the introduction of new machinery and new seeds, new breeds of cattle and new modes of treating the soil.

I know of no better 'Change for him than farmers' institutes and farmers' clubs, which shall meet regularly and as often as practicable to discuss the modes of farming and the principles which may be most worthy of application.

Suppose a farmers' club, for instance, established in every town and every village, furnished with a library suitable and accessible to all the reading community, meeting on grounds strictly neutral in politics and religion. What would be the result? In the first place it would promote the best social feelings and elevate the social qualities and the social position of the farmer. It would increase the intercourse between neighbors, separated it may be by sectarian and unchristian prejudices, as much as if an ocean rolled between them. Men would discover the sweet fountains of humanity welling up in many a heart, where they expected to find only bitterness and hatred. New and enlarged ideas would be spread abroad by lectures and discussions, placing before the thinking community whatever improvements others are making, and enabling many to adopt them, who otherwise would never even have heard of them. Farmers would become more and more interested in their vocation and more and more satisfied with it. The moment you bring mind to bear on the toils of the hand, that moment you dignify and ennoble them. Mind is the only thing that distinguishes the toils of man from the toils of the brute, and it is for this reason that those occupations, which neither require nor admit of the exercise of mind and thought, descend in some measure to the level of mere brute force. Let the farmer begin to think and to calculate and to educate himself for his calling, and he will have a respect for

it which he never felt before, and a self-respect which shall challenge and secure the respect of the world.

I do not speak without a knowledge of the exact situation of our small towns and villages. It has been my fortune to live in very many different ones in this and other States, and to have been more or less intimately acquainted with the inhabitants of them all. I am not so sanguine as to suppose that a club would meet with equal success in every place. In some, indeed, there is too much reason to fear that it would fail altogether, from the want of a few leading minds interested in the subject; but I believe that the number of these would be small, and I know of no better way of meeting the wants of those inquiring and thinking minds, which now form a large part of every community. I know of no better way of convincing the doubtful, that a cultivated intellect is not inconsistent with a body strengthened by honorable toil, or of showing that there is one thing in which all parties can unite—the cultivation of those higher social feelings which lie at the basis of all civilized society.

A beginning once made, however small, forming a nucleus for a library and a cabinet, enterprising and active minds would create a thousand facilities for enlarging and increasing it. Difficulties vanish the nearer we get to them. The lion is glad to get out of the way. No man ever succeeded who cherished in inactivity the delusive dream of hope.

Why, gentlemen, let such a club take up the discussion of the adaptation of flax to your lighter soils, and its probable profit, and I believe it would pay for all the trouble and expense of starting a club in every town and every village in the county.

Inquiring minds would look into the mode of culture, the extent of the demand, the expense of raising it, and the value of the crop. Facts would be brought out, which would throw light on the subject and encourage the cultivation of the plant. One would be surprised to find that the demand reached the utmost limit of the possibility of supply, and that the farmers of the west raising it for the seed alone, can realize a profit

which will enable them to throw away the fibre, which is itself worth nearly the price of hay. Another would discover that much of your soil is admirably adapted to it, that it requires only a moderate degree of fertility, that there is more danger of having the soil too rich, than of having it too poor and light. Another would find out that it did not exhaust the soil, as has been supposed, but that all the fibrous part of the plant draws its substance and support from the air and from water, and that it is only the seed that draws upon the soil, and that only to a very limited extent, which could be supplied with the utmost ease, by feeding out the oil-cake to cattle, and returning it in the shape of stable manure. Another would find a home market which must now be supplied by importation from countries which can raise it no better than we, at a cost of six or eight millions of dollars annually. Establishments for the manufacture of thread and coarse cloth from flax would be found at Andover, Clinton, Willimantic and Webster. It would be evident that other similar establishments would soon start up in different parts of the country. Another would look into the uses and demands for the seed, its fattening properties for cattle, the average amount per acre, and the price, and find equal encouragement there for its cultivation.

Another would examine the improved machinery lately introduced, with facilities for the preparation and manufacture of flax never before known, and would obtain information in regard to flax cotton, and all the varieties of fabrics for which flax is now required more extensively than ever. With the lights which all these investigations would open, the club would come to the important decision of the propriety of offering a premium for this very crop by the Hampshire County Agricultural Society. When the investigations connected with flax were concluded, the properties and value of root crops might be taken up and their peculiar adaptedness to the soil of your county would be impressed on the attention of farmers. Their fattening properties would be investigated. That would lead to experiments by one and another connected

with the club, and experiments would perhaps show that an animal might be fattened on swale hay and turnips alone. Thus practical results of great value to our farmers, would from time to time be arrived at, and questions would be settled which have been discussed for many years, to no purpose, because men did not work together.

The same may be said of farmers' Institutes, by means of which the highest intelligence of the country would be brought to bear on agricultural subjects, and a large amount of information in relation to the cultivation of the soil might soon be accumulated.

But time would fail me, should I attempt to explain the various means by which public and associated effort may be made to act on the progress of agriculture. Individuals are doing much by example to elevate and improve the agriculture of the Commonwealth, and whether they are, in all respects, strictly practical men or not, they are deserving of lasting remembrance. But there are still some who oppose all the efforts of the friends of improvement, and look with contempt on all the exertions of our societies and their members, and grow impatient when they find that their expectations are not realized. They forget that every thing which is to be of permanent value, requires the slow development of time and thought. I do not suppose any such are here today, but if there are, I can only say to them, plod on in the old style if you will, but be assured that the longer you plod in the ruts of a former time the deeper you wear them, till at last, when you can no longer see to the right hand nor to the left, the tide of progress will sweep over and bury you beneath its current. Do not complain of the ingratitude of the present and its want of reverence for the past. The old has sometimes opposed the new, but the new would reject the old, only so far as it refuses to do the best it can, to use the light it has rather than grope in utter darkness.

The present has not lost its reverence for the past, as some suppose. It is only a part of the past that has ceased to command respect. It is that part of it only which was op-

posed to progress and to knowledge, for that part was unnatural and opposed to itself, for progress is the law of life, and to be opposed to a rational progress is in effect to die and be forgotten.

If we did not learn the best modes of farming when we were young, it was because there were then no facilities for doing so. We did the best we could and used all the light we had. But now when we have these facilities, we will not say to our children, "We did so and so, and you may go and do likewise!" No! Rather let us tell them to study and comprehend the age in which they live. Tell them they are expected to do better than their fathers did if they can, and to imitate them only when they can no longer improve upon them. Tell them to educate themselves for farming as a profession. Tell them the world will instinctively award its honors, its dignities and its power, not merely to those who are educated for the law, for divinity, for medicine, for teaching, or for the counting-room, but to those who are educated for their occupation. Tell them the professions, technically so called, have hitherto exerted an almost unbounded influence on mankind, only because they have done so much of the thinking for the world, have brought so large a share of intellect to bear on the progress of the race. For these reasons the world has bowed in reverence to their superiority of intellect, and has given a prominence, not to law, medicine or divinity, but to that intellectual culture which gives to life its grace, its harmony and its beauty, and which they may acquire as well as others. Tell them that science, stooping from its proud flight among the clouds and the stars, has shed its genial light around them and above. Tell them to learn of nature; to seek knowledge from the right hand and the left, and though to attempt to learn all her laws and observe all her miracles may seem as hopeless as, to try to gather together the pebbles on the shore of the sea, yet in the enlargement and elevation of mind which it will produce, every object will be clothed with the perfection and beauty which it had when it came from the hand of God!

But so long as farmers think that nothing is wanting but bone and muscle, strength of sinew and power of endurance; so long as they neglect all mental culture, and look with contempt on all intelligent farming; so long as they discard good taste and good language and good manners as unnecessary; so long as they disregard all sentiment and all refinement, so long will farming languish and be forced, by farmers themselves, to take its place among the mere mechanical employments by the side of machine and slave labor, when it might and ought to be elevated and dignified, as worthy of the highest intelligence, as opening the field on which human genius has some of its grandest triumphs to achieve!

Reports of Committees.

REPORT ON FRUIT TREES.

BY DAVID RICE, M. D.

The best methods of propagation, and the best varieties of fruit trees, have been considered by former committees of the Hampshire Society. Something to amuse the fancy, may be often as profitable, as the weightier matter, that instructs the mind. The light and shade of a picture adds beauty and value to it. The music of the flowing stream fills the atmosphere with gladness.

Pleasure, health, luxury and profit may be derived from the culture of fruit trees.

It is pleasant, as well as instructive, to watch the *growth* of a tree, from the opening of the rich mould in spring time, by the egress of the tender plant, to the full maturity of the beautifully proportioned tree of many years.

A celebrated French writer was once dissuaded from a design he had conceived of compiling a history of nature from the works of others, by the study of a strawberry plant that grew in his window. On minutely observing its progressive growth, he found so much to admire and to learn, that he felt convinced "that the study of a single plant, with its habits, would suffice to employ the minds of many learned men." He accordingly abandoned his original plan, and the contemplated title of his book, and gave it the simple name, "Studies from Nature," and a very valuable book it proved to be.

The exercise of planting, training, pruning and working among fruit trees, is a real pleasure, which is heightened by the hope of future fruit. What vocation is more pleasant than that of cultivating, on one's own premises, orchards of apple, peach, cherry, and quince trees, or vines, climbing over fanciful arbors, and beds of luxuriant strawberry?

The beauty of fruit orchards is a source of exquisite delight, especially in the flowering season. What is more enchanting to the lover of the beautiful, than an orchard of apple or peach trees, clad with their chastely delicate blossoms, in early spring?

An apple blossom is indeed as charming a flower as the most beautiful

exotic, and its fragrance is seldom excelled by the rarest flowers. Go out in the morning in spring time, when your orchard is in full bloom, and tell me, did you ever witness any thing more delightful? The trees themselves are graceful objects, standing in regular order, spreading their branches into globular shaped tops, and clothed in dresses of dark green leaves. Myriads of buds and blossoms, of a delicate rosy hue, are intermingled with the foliage, and diffuse on the morning breeze a delicious ordor. The happy song birds are there, while the apple blossoms descend on delicate wings to nestle among the grass blades and the diamond dew drops.

"Now the earth prolific swells,
With leafy buds and flowery bells;
Gemming shoots the olive twine;
Clusters ripe festoon the vine;
All along the branches creeping,
Through the velvet foliage peeping,
Little infant fruits we see,
Nursing into luxury."

In autumn, too, the orchard is a princely show, laden with ripe, delicious fruits, red-cheeked and golden. Fair, ripe, mellow peaches blush in beauty, like a young maiden, and their charms vie with the rosy-tinted apples and purple grapes, that hang like swinging gems in the tree tops, and nestle among the dark green leaves of the vine.

Ripe fruit is a healthful luxury when partaken in proper quantities and at proper times. Apples, peaches, pears, strawberries, grapes, in all their variety of form and flavor—when most needed, most agreeable—are luxuries indeed. But when by the magical culinary art, they are transformed into pies, tarts, sauces and sweetmeats, by our wives and daughters, is not the "Ne plus ultra" of luxuries fairly reached?

Ripe fruits promote health, and form, with other articles of aliment, wholesome food, alleviate thirst, and give energy to the digestive organs. Ripe apples and peaches are good for persons recovering from fevers and dysenteries, and help to hasten the return of health. Scopoli "was cured of dyspepsia by eating ripe apples." Says Dr. Willach, "in diseases of the chest, either roasted, boiled, or stewed, they are of much service, and may be employed in decoctions, which, if drank plentifully, tend to abate fever and allay cough." Cider, or the fermented juice of apples, is an excellent acid tonic for scrofulous persons, to be taken in moderate quantities with other food. In consumption and catarrhal coughs, cider is useful to allay both fever and cough, and is preferable to brandy or wine as a tonic. Dr. Newman was cured of a chronic dysentery by eating ripe peaches. Linnæus, the great botanist, was cured of the gout by the use of strawberries. Ripe grapes are said to be useful in a case of torpid liver. The seeds of the quince, infused in cold water, form one of the most valuable mucilages; and a decoction of the dried quince, sweetened with white sugar, is superior to almost any other acidulated drink in nearly all kinds of fever, and, sweetened with honey and liquorice, it is excellent in consumptive coughs.

The culture of fruit trees may be a source of *profit*. There is no other pursuit connected with the farm, requiring only the same amount of labor and expense, that is so lucrative. There is a great income in proportion to the outlay. No crops of grain, grass, or esculent roots, other things being equal, pay so well as the fruit crop. Many farmers annually get more profit from their orchards, and receive more money for fruit, than for all the other products of the farm. One of my neighbors has gathered and sold from one tree, this season, thirty bushels of fine fruit. An orchard of forty Baldwin apple trees "has been known to produce in one season, three hundred bushels of fine fruit." Says H. F. French, "At the lowest rate of product that any man in his senses would estimate, as a common crop, an apple orchard will give four times the amount of profit, as the same quantity of land in grass for hay, with less cost for cultivation."

Apples are in good repute for fattening horses, cattle and swine.

Cider vinegar is the nicest and most agreeable of any, and readily brings from three to five dollars in market. Cider molasses, made by boiling sweet cider into a syrup, is excellent for making and preserving sauces. Brandy, distilled from fermented cider, for certain useful purposes, is not excelled by any other spirit.

Pleasure, luxury, health and profit, are or *ought to be powerful incentives* to every one, who owns an acre of land, to raise fruit trees. A farm, without an orchard, is like a book without title-page or pictures; or a painting destitute of the proper light and shade; or a heaven without stars.

Your committee were invited to view six orchards and two nurseries. Five of these have been set out since 1845; the sixth was an old orchard, reclaimed by the process of grafting. Three of these orchards have already received first premiums from other incorporated societies, and consequently could not again receive a first premium, under the statute of 1855.

All the orchards we examined, were in good condition, and looked beautifully.

ORCHARD OF MOSES STEBBINS.

This orchard was undoubtedly the best orchard, and would have taken the first premium, had it not already drawn that premium from another society, receiving the bounty of the State. His orchard stands upon table land in Deerfield, just under the brow of sugar loaf mountain, and covers over four acres. It contains two hundred trees, set out at intervals, since 1845. The soil is a light, sandy loam; partaking much of the nature of the soil in the vicinity of Sugar Loaf, which is composed of new red sandstone. Previous to setting out his trees, Mr. Stebbins treated his lot to a compost of slacked lime and salt. On two acres, he plowed in sixty hundred pounds of lime, sixteen bushels of salt, and six bushels of plaster. One hundred and twenty trees stand on these two acres. The land has been cropped, annually. This year, Mr. Stebbins has raised fifty bushels of corn, to the acre, in his orchard. He used no manure, save about five hundred pounds of guano to the acre, sowed on and plowed in. Your committee thought the lime and salt had much to do with the thriftiness of both trees and corn. He gives his trees a top dressing of compost every spring. Mr. Stebbins does not

allow any thing to grow under his trees. He leaves a fallow plot under each tree. His orchard contains the choicest varieties of fruit. We congratulate Mr. Stebbins on possessing so fine an orchard. Your committee left, hardly knowing which to admire most, Mr. Stebbins himself as an accomplished and gentlemanly farmer, his superior orchard, or his model farm. We advise every person, who wants to raise an orchard, to visit his premises.

ORCHARD OF GEORGE CHANDLER.

My orchard, in Belchertown, consists of eighty-one trees, which bear the following varieties, viz.: Baldwin, 64; Porter, 2; Hubbardston Nonsuch, 2; Gravenstein, 1; Sops of Wine, 1; Newtown Pippin, 2; Roxbury Russet, 4; Greening, 1; Northern Spy, 2; Ladies Sweeting, 2. The land, on which this orchard stands, is a gravelly loam. The trees were set in the spring of 1849. They were then two years old from the bud. I set them, little, if any, deeper than they stood in the nursery. I dug a hole sufficiently large to admit the longest roots and about ten or twelve inches deeper than the lowest roots. I then put in a few shovels of rich loam and filled up around the trees with the dirt thrown out, taking particular pains in spreading the roots and small fibres. I have washed them, once a year, with a solution of potash-water, composed of one pound of potash to about five quarts of water. The land, on which two-thirds of the trees stand, I have kept plowed and have taken a crop from it, annually. I have spread on manure, every spring, since the trees were set, with two exceptions, and plowed in. The remaining trees stand on sward land, and have been manured but little. I generally raise the earth around the latter, six or eight inches, late in the fall, to prevent the mice from girdling, and level the same in the spring; keeping the soil light and loose. Some of my trees are in bearing condition and some of them bear abundantly.

ORCHARD OF PARSONS WARNER.

Mr. Warner has a beautiful orchard in Sunderland, containing one hundred and twelve trees. It stands upon a plot of ground on the bank of Connecticut river, a deep sandy loam. The trees are very thrifty, and will soon be in full bearing. They were set out in 1848–9. Mr. Warner cultivates the land, on which his orchard stands. This year he has raised, among his trees, a heavy crop of broom-corn. We should think broom-corn would shade a young orchard too much, and have a tendency to thicken the tops of the trees and make them grow too compact.

STATEMENT OF JOSIAH AYRES.

Apple seed should be planted in the fall, in land well manured and deep tilled. When the shoots come up in the spring, cultivate with care, stripping off the leaves one foot from the ground. When one year old, transplant them in rows at a proper distance. As soon as large enough, bud them near the ground, with buds taken from good bearing trees. When large enough to transplant, prepare holes, at least four feet in diameter, and three feet deep; two feet thereof thoroughly mix with compost; then transplant with great care; set the trees about the same depth that they stood

in the nursery; two rods each way; never set a tree that is not thrifty; mulching is good; manure them in the fall with compost—dig it in, in the spring, when the apple trees are in blossom, and put ashes and charcoal around the trees—this is the best time to prune and wash the trees. Great care should be taken not to prune too much in this climate. The limbs and trunk should be shaded, when the tree is growing fast in August and September. When the tree is small, let it be shaded artificially. Let the twigs grow on the limbs, when the tree is too small to bear fruit. It will not injure the tree so much, as when fruit grows on the ends of the limbs. Wash trees in ley, potash-water, or soda-water, which you please; but take great care not to have the wash too strong. The strength can be determined by observation; if too strong, the bark will soon turn dark, and when it is wet with rain, it will turn yellow. The wash should not turn the color from the natural green.

Select what fruit you please for your own use; but, for profit, select such as grow quick and bear well, and are wanted in market, especially such as are adapted to this climate.

NURSERIES.

There were two competitors for premiums on Nurseries, Messrs. Warner and Hunt of Sunderland.

Mr. Warner's nursery contains four hundred trees, all budded or grafted. About one-half of them are fit for transplanting. Seventy-five are only one year from the bud, and some of them have grown five feet since budding.

Mr. Hunt, also, has an excellent nursery, hardly inferior to Mr. Warner's. Mr. Warner's trees are rather straighter, and have had more attention than Mr. Hunt's, nor have they been culled or broken in upon in the least. Mr. Hunt's nursery is the continuation of one that has been culled. Both are excellent nurseries, and the writer intends to select some trees from both, next spring, for a young orchard.

RECLAIMED ORCHARD OF DANIEL BALLARD.

This was the only entry for a premium on a "Reclaimed Orchard." Mr. Ballard's orchard contains one hundred and twenty trees, standing on Wendell land, which is a compound of knolls and rocks. He has reclaimed his orchard by grafting. Every old tree has a new top, bearing the semblance of a tree, he having set more than four thousand grafts since 1845. The orchard looks quite well, and contains some good varieties of very fair fruit. His experiment shows what can be done for an old orchard by grafting, and making new tops. We wish Mr. Ballard success, but advise him to try his hand at trimming, pruning, and getting out rocks, and putting a compost of ashes, muck and yard manure around his trees, in order to improve both their appearance and health.

REPORT ON FOREST TREES.

BY PROF. WILLIAM S. CLARK.

In the inspired account of the creation of man and the existing races of animals and plants, we are informed, that trees were essential to the perfection of the Garden of Eden, the record being as follows: "And out of the ground made the Lord God to grow every tree that is pleasant to the sight and good for food." It is also stated as conclusive evidence of the surpasssing wisdom of Solomon, that "he spake of trees, from the cedar tree that is in Lebanon, even unto the hyssop, that springeth out of the wall."

Sustained by such authority in favor of the study and cultivation of trees, your Committee would venture the opinion, that much more time and thought should be given by farmers to the real value and proper use of old forests, and to the preservation and perfection of younger timber of spontaneous growth, as well as to the planting of those species, which, while they improve the soil, make larger returns to the cultivator, than any other crop.

It is confidently believed, that the full-blooded, crude Yankee has an instinctive hatred of all monarchs, especially those of the forest; and that the fatal axe is as peculiarly his weapon, as is the boomerang that of the Australian savage.

A reason for this will appear to the traveller, who will ascend Mt. Washington, and cast his eye over the immense wilderness, which covers the slopes and the valleys of the White Hills; or to him who will visit the head waters of the Connecticut, and wander a few days in the unbroken forest, which stretches away northward, more than one hundred miles.

New England, two centuries ago, was a heavily timbered range for wild beasts and their Indian hunters; but so fierce and pitiless has been the Yankee warfare against the aboriginal inhabitants of the land, that they are all, Indians, animals and forests, well nigh exterminated.

It is time for this indiscriminate slaughter to cease, and for some method to be devised and employed, for repairing the damage already sustained. Unless Massachusetts does more to preserve her forests where they exist, and to recreate them on the rocky hillsides and sandy plains, which have been rendered unproductive and almost worthless by a wretched system of farming; she will be often compelled, as she recently has been, to hear the sad voice of one and another of her agricultural towns, asking leave to expire. The few of her intelligent young farmers, who cannot forsake their native state, will gather around her cities and manufacturing towns, and become large gardeners, raising fruits and vegetables; while the remainder, who adhere to their calling, will leave for a new country.

Well has it been said, that a broad band of waste land follows gradually in the steps of cultivation. "Thorns and thistles, ill-favored and poisonous

plants, mark the track which man has proudly traversed through the earth. Before him lay original nature in her wild, but sublime beauty. Behind him he leaves the desert, a deformed and ruined land; for a childish desire of destruction, or a thoughtless squandering of vegetable treasures, have destroyed the character of nature, and man himself, terrified, flies from the arena of his actions, leaving the impoverished earth to barbarous races, or to animals, so long as yet another spot in virgin beauty smiles before him."

It is well known that many countries, which were formerly well-watered and populous, as portions of Egypt, Syria and Persia, have by the destruction of the forests been converted into treeless, arid, uninhabitable wastes. The same change is rapidly coming over our own land, and unless arrested soon, will produce equally disastrous effects.

Forests are useful in many ways;—they furnish fuel and timber; they absorb carbonic acid and purify the atmosphere by evolving in its place an equal amount of oxygen; they attract electricity and rain from the clouds, and by their shade prevent the too rapid evaporation of water from the earth; and they exert a wonderful power in decomposing rock, loosening and deepening the soil and supplying it with a vast amount of vegetable matter.

Did the space allotted to this report permit, it would be interesting to consider at length the question, whether the members of the Society could not profitably transform one-half or, at least, one-third of their over-large farms into plantations of valuable trees? Would it not pay better to have a plantation of healthy pines growing rapidly every year, and at the same time benefitting the soil, beautifying the landscape, and purifying the air, rather than to own a barren, sun-burnt, old field, which will yield ten bushels of rye per acre once in three years? Would it not be well to have fine forests of European larch at work, decomposing the granite rocks of the hill pastures, and at the same time, protecting the thin turf and cattle from the scorching rays of the sun, and breaking the furious wintry blasts which are ever stripping off the snowy covering, so kindly furnished to keep out the cold; and in addition to all this, attracting every neighboring thunder-cloud, disarming it of its deadly power, and absorbing its life-giving electricity and its refreshing waters, and receiving from every passing breeze its poisonous carbonic acid to be converted into carbon for valuable timber and wood, and oxygen for the support of man and the animal kingdom? Would it not be well to inquire whether white oak, white ash, locust, black walnut or hickory could not be advantageously planted on some of the better soils? or whether every man may not as well have an orchard of sugar maples, as one of apple trees?

These suggestions are thrown out, in the hope that the members of the Society may be persuaded at least to think of the subjects thus briefly hinted at, to be cautious in the use of the axe, and to entertain a suitable reverence and affection for the noble old trees, which are ever toiling silently but faithfully for their welfare.

PLANTATION OF T. P. HUNTINGTON.

This plantation is beautifully situated, in Hadley, on a low range of hills, running parallel to the Connecticut river, and is elevated some sixty feet above it. It comprises four acres of light, sandy soil, and was planted twenty-five years ago. Furrows, one rod apart, were plowed across the lot, and one thousand locusts were set out in them. At present, the piece is covered with a dense growth of white and yellow pine, with occasionally an oak, a hickory and a chestnut. Many of the locusts have died, so that not more than half the original number remain. These are from fifteen to thirty feet in height, and are as thrifty as could be expected on such a soil. They are not very badly affected by that scourge of the locust tribe, the borers, although nearly every tree bears their mark.

REPORT ON SUBSOIL PLOWING.

BY S. C. WILDER.

NOTWITHSTANDING the great importance, not to say the *absolute* necessity of deep tillage on certain soils, to insure an abundant and paying crop, yet few seem disposed *practically* to believe it. They readily admit the theory, but, for some unaccountable reason, they are slow to practice. We venture to say, that it is impossible to reclaim, and make productive, any land, high or low, marshy or otherwise, which has a hard, clayey subsoil, without *deep tillage*. This is absolutely essential on land of this kind, if a paying crop is to be obtained; for, in no other way, oftentimes, can the surface water be successfully drained off. In almost all cases, the subsoil plow will drain the land more effectually than either blind or open ditches. Let this plow follow the common one, loosening the earth as far below the first furrow, as that furrow is deep; and the entire field thus plowed is underdrained; the water contained in the surface soil being received by the loosened subsoil below; and, being retained there, furnishes moisture for the growing crop in time of drought. Experience has demonstrated that, on soils of the kind under consideration, all crops and grasses are much benefited by subsoiling. The roots of crops go *down* for sustenance and moisture, as well as search for them on every side. We cannot too strongly urge upon our brother farmers the use of this plow, especially on hard soils. Use it for spring crops, use it for winter grain, and use it if you would have good meadows.

EXPERIMENTS BY ALBERT MONTAGUE.

I present, for consideration, a statement of the effect of subsoil plowing upon three pieces of land of similar soil, and in about the same state of cul-

tivation. I plowed the land seven to eight inches deep and subsoiled six to seven inches.

No. 1 was a piece, upon which a crop of corn was taken last year. It contained one acre. One half of it was subsoiled. The whole piece had been equally manured and treated alike for a number of years. Upon this piece I sowed oats and grass seed, and could see no difference in the piece from the time the oats came up until harvested. But, now, the clover upon the subsoiled part is a little the largest, enough to be noticed by persons who pass by the lot.

No. 2 was a piece of green sward, containing two acres. One-half to three-fourths of an acre, through the centre, was subsoiled. Upon the whole I spread compost manure and harrowed it in. I spread as evenly as I could over the whole piece; then planted it to broom-corn, using a few ashes in the hill. The piece was cultivated alike through the season; but the broom-corn upon the part subsoiled, was longer, of a better color through the season, and, I judge, will yield from one hundred and fifty to two hundred pounds of brush to the acre, more than that upon each side of it, and the seed is much better.

No. 3 was a piece, subsoiled three years since, and planted to corn. Same quantity of manure was used, and it was managed alike through the season, and the corn crop was no better upon the subsoiled, than upon the part not subsoiled. I sowed grass seed at the last hoeing. I have mowed it for two years past, and each crop of grass has been much the best upon the part subsoiled, being I think nearly a ton more to the acre.

SUNDERLAND, Oct. 10, 1855.

MANURE EXPERIMENTS.

BY ALBERT MONTAGUE.

No. 1. I purchased, last spring, Superphosphate, Poudrette and Guano, for the purpose of testing their comparative value with each other and with barn-yard manure.

Upon one acre of my best land, I spread eight loads of well rotted manure and harrowed in; then, planted to broom-corn, using $1.44 worth of Poudrette in the hill, upon one-half of it, and $2.41 worth of Superphosphate upon the other half, dropping both Poudrette and Superphosphate at the time of planting, using Woodward's Planter. At the first and second hoeings, the corn, where I used the Superphosphate, was the most promising; and at harvesting, I should judge, would yield from fifty to one hundred pounds more broom-brush.

No. 2. Upon a piece of green sward, soil rather cold and heavy, I spread fifteen loads of compost to the acre; then, planted to Indian corn, using Superphosphate upon one-half, and good wood ashes upon the other half, putting quantities of equal value upon each. The corn upon the Superphosphate part came up first, grew the fastest, ripened ten days earlier, and

will yield ten bushels of corn more than the ashed part. Nearly the same result I found, by experimenting with superphosphate and ashes upon a piece of light, sandy soil. I think the relative difference was about the same, although the piece of corn was much lighter.

No. 3 was with guano and barn-yard manure. I measured one and a half acres of good meadow land, that had been well manured and well cultivated for a long time. Upon one-half of it, I spread and plowed in eight loads of good yard manure, for which I paid eight dollars. On the other half, being in the centre of the piece, I spread Guano at the same cost, as the yard manure (i. e., at the first cost—the expense of applying the Guano was but little, compared with that of applying the yard manure). I harrowed in the Guano. Then, I planted to broom-born, using a little Superphosphate in the hill, upon the whole. The piece was managed alike, during the whole season, after the different manures were applied. Many persons, who have passed, have asked why the middle of this piece looked so much the best. I referred them to the Guano. The crop is not yet harvested, but good judges have said there would be two hundred pounds more of broom-brush and a greater excess of seed upon the guanoed half.

No. 4. Believing broom-corn stalks of some value, if plowed in green, I cut some stalks from a part of a piece, immediately after I had taken off the crop, and placed the stalks in furrows nice and smooth—one hand plowing, while another took care of the stalks. I sowed the piece to oats, the following spring, and upon the part where I plowed in stalks, the oats were one-third heavier, than where none were plowed in. I obtained eight dollars worth of oats on one acre for the labor of getting rid of my broom-corn stalks in this way. And as to the removing the stalks, it did not cost me a dollar more, than to have gathered and burned them in the spring.

Sunderland, Oct. 5, 1855.

EXPERIMENT BY J. EDWARDS PORTER.

The land, on which my trial of Guano was made, is situated in Hadley, on the plain. The soil is a sandy loam,—has been frequently cropped with rye—the crop of 1854 yielding only five bushels to the acre. Some four years ago, wishing to try the effect of Guano upon this land, I purchased and carefully composted the Guano with seven parts of earth; applied it to the hill, at the rate of one hundred pounds per acre, and planted to corn. At the first hoeing, I was surprised at the healthy appearance of the crop. It continued to grow vigorously, outstripping for a few weeks the corn upon my best land. But a change came, and my corn assumed a sickly appearance. I found that my homœopathic dose of Guano, in its haste to produce stalks, had exhausted all its force and there was no virtue left for ears. My crop was a failure. So I concluded that, if I had treated my poor, sandy land more liberally with Guano, I should have been amply repaid at harvest.

I have, since, practiced on this conclusion, and have had my reward. I have applied four hundred pounds of Peruvian Guano to the acre, broadcast, and plowed the whole under, to the depth of six inches. At one harvest, I gathered from three acres of this poor, sandy plain, three hundred and six bushels of corn in the ear, and realized a net profit of $92.

HADLEY, Nov. 14, 1855.

REPORT ON FARMING TOOLS.

BY HON. FRANCIS DE WITT.

SCIENCE and art have been constantly producing wonderful changes in all departments of industry. The agriculturist, once slow to comprehend the importance or necessity of any change in form or substance of the farming tools used by his father, now realizes that changes may be made, which are decidedly beneficial. We need but to go back thirty or forty years, to draw a striking comparison with the times in which we live, and articles in daily use. Many farming tools of former times are becoming obsolete and are seen only occasionally in a corner of some old garret, having been superseded by "labor-saving machines."

Of the implements used for agricultural purposes, nearly all have passed through such a transformation in the march of improvement, that some of them could hardly claim the relationship of "third cousin" to their predecessors of the same name. Others again, "new and rare" things, which our fathers dreamed not of, are now considered almost indispensable to every farmer.

Among the many good results growing out of the formation of agricultural societies, is the rapid improvement in farming tools. In no department of industry are improvements progressing so rapidly, as in agriculture. The fact is noted in the Patent Office Reports, "that the greatest number of patents applied for and issued, of any one class, are connected with agriculture, and the fewest are those to be used in war;" it is said the proportion is nearly as ten to one. This probably in part arises from the fact that improvements can be made; that agricultural societies stimulate such improvements; and partly because labor-saving tools are necessary, owing to the scarcity of farm laborers and the high price of labor. It is hoped another good may be the result of these exhibitions of skill and industry. Our young men, who, in years past, have been disposed to forsake the old homestead, and the tilling of the ground for positions and occupations in cities and large towns, with a *future prospect* of a little more cash, but far less independence, may be enabled to see that there is a scope for the mind, in the

science, as well as art of farming; and, by the use of the improved and labor-saving machines, the farm work is not all mere drudgery. At the same time, there is more real enjoyment of the gifts of a bountiful Providence, than can be obtained in the usual employments of the dense population of a city. The farmer and mechanic are so closely connected in interest and so dependent upon each other, that it is desirable they should, on an occasion like this, meet on common ground, and together enjoy that interchange that is necessary for mutual improvement. We hope the fairs of this society will increase in interest in this essential department of agriculture.

REPORT ON MOWING MACHINES.

BY THEODORE G. HUNTINGTON.

We have ever felt a deep interest in the success of Mowing Machines. We have too many reminiscences of aching bones, of garments steeped in sweat and of exhausted lungs, not to desire most fervently the introduction of some instrument that shall cut grass evenly, without clogging, and with ease to the team that does the work.

Of the relative merits of the different Machines, it is not our intention here to speak. The most prominent ones in use in this State, are Ketchum's, Manny's and Russell's. These have been tried side by side in various parts of the State. Committees have been appointed to see them work, and their decisions are before the public. Doubtless, each has its merits and its defects. The former we shall be most grateful for, the latter point out to the manufacturer that he may remedy, if possible. We should be satisfied with nothing short of a perfect machine, until we are sure such an one cannot be made. Let us then enumerate some points which we think essential to such an instrument:

1. It should be easily drawn.
2. Easily conveyed from field to field.
3. Easily managed while at work.
4. It should cut close.
5. It should cut smooth or without clogging.
6. It should lay the grass evenly.
7. It should be able to start in grass without backing.
8. It should cut equally well with or against the wind.
9. It should be adjusted so as to cut high or low.
10. It should not be liable to get out of repair.

Perhaps some may say that these ten requisites cannot all be combined in

one machine. It may be so, and yet it is encouraging to know, that they are found to a good degree, though not in perfection, distributed among the different machines above mentioned. For instance, we have one or two machines, which are tolerably light of draft, viz: Manny's, and Ketchum's improved. The former of these is generally so acknowledged, but whether in reality it has any claim to superiority in this respect, can only be determined by an instrument made for the purpose. At a trial held on the farm of T. P. Huntington of Hadley, in June last, we suggested that the competing machines should be subjected to some such test, but it was not done. It is a matter of some importance, and we may have occasion to refer to it again. In regard to the second and third of our requisitions, Manny's seems to be nearly perfect; while in regard to the fourth and fifth, both that and Ketchum's do very fair work, though on the fifth point they are not faultless. We are aware that it is claimed for both these machines, that they will not clog, and we gladly concede, that in ordinary mowing, they do not; but we have witnessed instances, the past season, in which both proved themselves imperfect on this point. The difficulty arises probably, in part at least, from the fact that the knives work about half of the time at a disadvantage. The course of the knives on the ground being serpentine or zigzag, it is easy to see that the central part of each stroke is made at much the best advantage. When this difficulty shall have been fairly overcome, the great problem of mowing with Machines will be solved. Mr. Russell's mower, though operating unfavorably in some respects, is as far as our knowledge extends, without fault in this. Our acquaintance with it, however, is limited, and we would not positively claim for it so desirable a quality. On the sixth point Ketchum's is all that can be wished. The eighth point is accomplished with Manny's mower by the use of the reel, and we know of no other way in which it can be done. We presume it would be next to impossibility for any man to spread grass as evenly as this Machine. On the other hand, Manny's, by being made to cut at any desired height, possesses peculiar advantages in mowing over stubble grounds, that are growing up to weeds, mossy and stony lands, &c.

Thus it will be seen, that each machine has its own merits and defects. Our object in speaking of them, is not to make invidious distinctions, but to stimulate to further improvement. It is by no means desirable that all should be made by the same pattern. Competition, besides being the life of business, may almost be said to hold in her hands the guarantee of perfection. Nothing has contributed more, as we believe, to the excellence of our plows, than the rival manufactories at Boston and Worcester; and so close has the competition become, that he must be a niggard in his commendations, who hesitates to award the merit of success to the conductors of either of those establishments.

So let it be with Mowers. Let each improve his own and each will receive his due share of patronage. But we venture to say, our farmers will never accept of a machine that will not cut all kinds of grass and cut it close. If there is anything that the better class of them take a pride in, it is a well-

mown field ; and a machine that does not work among the lower joints of the grass, will hardly find favor with them. Neither do they want one that requires an extra horse and hand to run to the blacksmith's for repairs. Especially would we urge the importance of lessening, as much as possible, the draft. Though great improvement has been made in this particular, there seems no reason for supposing we have attained its limit. A pair of horses now does the work of only five or six men, which shows a great loss of power somewhere. If by any means this could be saved, it would be an achievement worthy of the best efforts of our mechanics, and would probably add more to the well being of the State, than the thousand and one schemes offered by sagacious politicians for the same purpose.

Besides, he who succeeds here wins the favor of the fair. For woman's tender and generous nature revolts at the idea of unreasonable service from an animal, which of all others seems best to understand her fine sensibilities. She looks askance, indeed, at all our boasted improvements, which do not include in their scope, kindness to the brute creation, but will bestow her choicest benisons on him, who, while he lessens the toil of father, husband, or brother, scorns not to take into consideration the comfort of those mute servants, so useful in our business and so dependent on our care and kindness.

Hitherto, the success of a machine has depended too much upon the man who has managed it. We want such machines as common farm laborers can operate. We are neither able or willing to hire mechanics to cut our grass. If done at all, it must be by the ordinary help of the farm, and whenever manufacturers shall furnish us with good practicable machines, *proved* to be such, at reasonable prices, they may be sure of an extensive demand for them.

CROPS.

Thirty crops were entered for premiums, viz. : four of wheat ; six of corn ; four of rye ; four of broom-corn ; two of oats ; five of potatoes ; three of carrots, and two of turnips. The statements were examined, after harvest, by the Executive Committee, and those of the successful competitors are here published.

CORN.

Statement of Austin L. Clark.

This crop was grown upon one acre of sandy loam, on which I applied, last year, ten loads of manure. The first week in May I plowed, and turned in ten loads of yard manure, about eight inches deep. I then spread on nine loads of compost and harrowed in. On the 16th of May, I planted in rows

three feet apart—hills three feet four inches apart—and put five bushels of ashes in the hills, which were not raised. I hoed three times. On the 24th of September the crop was harvested.

Value of Crop.

91¼ bushels corn, at $1,	$91 25	
3 tons fodder, at $6,	18 00	
9 bushels soft corn, at 25 cents,	2 25	
		$111 50

Expenses.

19 loads manure, at $1,	$19 00	
5 bushels ashes, at 22 cents,	1 10	
Plowing and harrowing,	2 00	
Hauling manure and planting seed,	3 50	
Hoeing, cutting and stacking,	6 50	
Carting and husking,	6 50	
Interest on land,	5 00	
		$43 60
Net profit,		$67 90

SUNDERLAND, Nov. 15, 1855.

Statement of J. Edwards Porter.

My crop was raised on two acres of sandy loam. In 1854, I took off a crop of rye, say twelve bushels per acre; and in 1853, a crop of broom-corn of some four hundred pounds per acre. I hauled from a muck-hole, near by, some sixty loads, which I deposited in four piles, placing at the bottom of each pile a load of horse manure, and another in the middle of the pile. In November, I added two loads of horse manure to each heap, and had the whole worked over, and composted. In the spring, a small quantity of manure was added, and one more turning and mixing of the compost prepared it for use. This was evenly spread over the surface, at the rate of thirty-five loads of compost to the acre, and upon this I sowed one hundred pounds of Guano, and plowed the whole under, to the depth of seven inches.

Value of Crop.

163½ bushels of corn, at $1,	$163 50

Expenses.

Plowing, harrowing, planting and rolling,	$5 67	
Seed, 75 cents; hoeing, $8,	8 75	
70 loads compost, $42; 200 pounds Guano, $6,	48 00	
Interest on land, at $100 per acre,	12 00	
		$74 42
Net profit,		$89 08

HADLEY, Nov. 14, 1855.

RYE.

Statement of Washington Miller.

My rye grew on one hundred and five rods of my best land. In 1854, I spread twelve loads of yard manure, plowed it in, seven inches deep, planted to broom-corn, and harvested at the rate of eight hundred pounds of brush to the acre. In October, 1854, I turned in the broom-corn stalks and sowed the piece with a bushel of rye. Last April, I sowed on two hundred pounds of Mexican Guano, and harvested, about the 15th of July, twenty-eight bushels, weighing fifty-nine pounds to the bushel.

Value of Crop.

28 bushels, at $1,25,	$35 00	
1½ tons of straw,	9 00	
		$44 00

Expenses.

Seed, plowing, sowing and guano,	$6 25	
Harvesting and threshing, $4; interest $8,	12 00	
		$18 25
Net profit,		$25 75

SUNDERLAND, Oct. 2, 1855.

BROOM CORN.

Statement of Albert Montague.

My broom corn was raised on one acre of Sunderland meadow. It was planted to corn in 1853, and last year I took off a light crop of rye. In May, 1855, I applied eight loads of manure, spread evenly, and plowed in. I planted with Woodward's planter—the hills two and a half feet apart, and the rows about three feet apart. I dropped in the hills about fifty pounds of superphosphate of lime, mixed with fifty pounds of plaster, hoed four times, and left the ground nearly level. I used a Cultivator between the rows three times, and the last time nothing but the hoe, merely cutting the weeds, that they might not seed. I harvested on the 11th, 12th and 13th of October.

Value of Crop.

1129 pounds of brush, at 10 cts.,	$112 90	
66 bushels of seed, at 45 cts.,	29 70	
		$142 60

Expenses.

Plowing, harrowing and planting,	$2 50	
Manure in the hill,	10 50	
Hoeing, $8; harvesting and scraping, $10,	18 00	
Interest,	9 00	
		$40 00
Net profit,		$102 60

SUNDERLAND, Nov. 14, 1855.

Statement of N. A. Smith.

My piece of broom corn is part of a field of sandy loam, on which I raised broom corn last year. I plowed early in May, and put on about twelve loads of manure, well pulverized, and plowed it in. I planted the 8th of May, with Woodward's planter, and dropped in the hill one hundred pounds of DeBurg's superphosphate of lime. I hoed three times, and afterwards cut the weeds. The crop was harvested about the 10th of October.

Value of Crop.

1022 pounds of brush, at 9 1-2 cts.,	$97 09	
86 1-2 bushels of seed, at 67 cts. per bushel,	57 95	
		$155 04

Expenses.

Plowing, harrowing, planting and hoeing,	$10 00	
12 loads of manure,	15 00	
100 pounds of superphosphate,	3 00	
Harvesting, scraping, and cleaning seed,	10 00	
Interest on land,	9 00	
		$47 00
Net profit,		$108 04

SUNDERLAND, Nov. 14, 1855.

OATS.

Statement of Albert Montague.

The acre of sandy loam, upon which I raised oats, was in corn last year, and yielded a fair crop. In 1854, I plowed in fifteen loads of green manure, and put a little compost in the hill. In the fall, after the corn was harvested, I plowed about eight inches deep, and sowed oats early in the spring of 1855—25th of April—at the rate of four bushels to the acre. I harvested, the 8th of August, and threshed in September.

Value of Crop.

61¼ bushels of oats, at 50 cents,	$30 62	
1¾ tons of straw, at $8,	14 00	
		$44 62

Expenses.

Seed, plowing, harrowing and sowing,	$5 00	
Harvesting, threshing, and interest on land,	7 50	
		$12 50
Net profit,		$32 12

SUNDERLAND, Nov. 14, 1855.

POTATOES.

Statement of Nathaniel Smith.

My potatoes grew on eighty-eight rods of sandy loam or sandy knoll, which bore rye in 1853 and 1854, without manure. Last May, I plowed in seven loads of coarse manure; and, after two or three weeks, I harrowed it over, pulverizing the soil and destroying the weeds. May 30th, I planted about four bushels of Wood's Seedlings, and put about eight bushels of ashes in the hills. I hoed twice.

Value of Crop.

135 bushels, at 33 cents,	$45 00

Expenses.

Seed, plowing, harrowing and planting,	$4 00	
Manure and carting, $9; ashes, $2,	11 00	
Interest, $4; hoeing, $3; harvesting, $4,	11 00	
		$25 00
Net profit,		$20 00

SUNDERLAND, Nov. 15, 1855.

Statement of O. & F. H. Williams.

Our Peachblows were raised on one acre of light, sandy soil. In 1852, it was covered with blue clay, and in 1854 it was in corn. Last April, I plowed eight inches deep—made furrows three feet apart—filled them with compost, ashes and salt—dropped in small seed potatoes, and turned back the furrows with the horse.

Value of Crop.

227 bushels, at 50 cts.	$113 50

Expenses.

Plowing, $1.75; compost, $8; seed, 1.75,	$11 50	
Planting, 75 cts.; furrowing and manuring, $2,	2 75	
Hoeing, $5; digging, $15; interest and taxes, $6,	26 00	
		$40 25
Net profit,		$73 25

SUNDERLAND, Oct. 31, 1855.

CARROTS.

Statement of J. Edwards Porter.

My carrots were raised on 5-16ths of an acre of rich loam, plowed ten or twelve inches deep, which had borne carrots for three years. In 1855, I manured with ten loads of earth, that had sucked the juices of the barnyard for twelve months, and with fifty pounds of guano, plowed in eleven inches deep. I made ridges, eighteen inches apart, with a double mould board plow, and deposited the seed on the top of the ridges with a hand drill.

Value of Crop.

201 bushels, at 40 cents,		$80 40

Expenses.

Compost, $10; guano, $1.50,	$11 50	
Plowing and harrowing, $1,	1 00	
Seed and sowing, $1.75; hoeing, $6,	7 75	
Harvesting, $8; interest, $3,	11 00	
		$31 25
Net profit,		$49 15

HADLEY, Nov. 14, 1855.

Statement of O. & F. H. Williams.

Our carrots were raised on a half-acre of light, loamy soil, which was in grass in 1852 and 1853. It was manured in 1854 with compost, made from the stable, and sowed to carrots. Last May, we plowed nine inches deep with a Double Plow, planted with a Seed Sower, in rows two feet apart, and used a very light steel plow between the rows.

Value of Crop.

288 bushels, at 30 cents,		$86 40

Expenses.

Compost, $12; carting, $2,	$14 00	
Plowing, $2; seed, 40 cents,	2 40	
Sowing, $1; hoeing, $4,	5 00	
Thinning and weeding, $6.50,	6 50	
Harvesting, $6; interest and taxes, $4,	10 00	
		$37 90
Net profit,		$48 50

SUNDERLAND, Nov. 17, 1855.

TURNIPS.

Statement of Levi P. Warner.

My turnips were grown on 57½ rods of land, which, in 1854, was planted to corn, and sown to clover, at the last hoeing. In 1855, after taking off the hay crop, I plowed, harrowed and sowed 6 ounces of seed broadcast, applying a dressing of 100 lbs. of superphosphate of lime; and added 7 bushels of ashes when the plants were up.

Value of Crop.

256 bushels, or 6 tons and 800 lbs. at $6 per ton,		$38 40

Expenses.

Plowing, harrowing and sowing, $1; seed 20 cts.; lime $2.87,	4,07	
Ashes 87 cts.; thinning 50 cts.; harvesting $3 50; interest 68c.,	5,55	
		9 62
Net profit,		$28 78

SUNDERLAND, Nov. 17, 1855.

REPORT ON HORSES.

BY GILBERT A. SMITH.

Horses are among the most profitable animals the farmer can raise, at this time, for there is an increasing demand and high prices can be obtained The horse may also be one of the most attractive of animals. Let a fine horse be drove or rode through a street, and how soon all eyes are upon him. He excites many of the noblest and best feelings of man. Even the lisping boy exclaims in the fulness of his heart, O, that's a fine horse! what a beauty! Our horses should be of the best breeds. It is as cheap, or nearly so, to raise a good horse as to raise a poor one, if the right pains are taken at the start.

In order to raise a good horse, the colt should come of a sire and dam, which are not victims of any disease or unsoundness; and which have in themselves those good qualities, which we desire the colt to possess. In general, the sire and dam will transmit their qualities to their offspring. We recognize with pleasure the increasing interest in improved breeds of Horses.

REPORT ON SWINE.

BY LEVI P. WARNER.

We invite attention to a few practical hints, and perhaps to some existing errors, with regard to breeding, selecting, feeding and general management of the Boar.

A choice breed should be selected, preserved and improved. It is more honorable to breed a choice Boar, than to import him. Breeding a Boar for service is a matter of no small importance, and success requires skill and good judgment. The pedigree, for at least three generations back, should be ascertained, in order to avoid any impurities of blood, which frequently make their appearance after generations of apparently pure stock.

In breeding, it would be well to observe at what age a sow brings the best pigs, and whether at the first or second litter; also the effect of in and in breeding; and whether the Boar that first serves the sow has any influence on succeeding litters, and whether stock from two different boars is of equal quality, if the one serves ten sows a week, and the other only as many in a year.

In selecting the Boar for service, no haste is required. It is too frequently done, when the pigs are quite young. If all of them should run together, and have the same keeping until they are somewhat matured, a good judge of stock will make a good selection.

The feed of the Boar should be such as to produce a rapid growth and bring him early to maturity, without laying on too much flesh. Among the various kinds of food in common use, the best for growing swine are milk, boiled potatoes, wheat and rye bran, with a mixture of green clover and weeds, while Indian meal and all other heavy grains should be cautiously fed.

With regard to the management of Boars, they are too generally brought into service, while too young; and are fattened and killed when they should be in their prime. And they are not always supplied with litter, sufficient to keep them clean and healthy, especially in cold, damp weather.

FEEDING SWINE.

Experiment by Albert Montague.

I present an experiment in feeding swine with cooked, and with uncooked food.

The meal, cooked and uncooked, was alike; one-half corn, one-fourth oats, and one-fourth broom-seed. I cooked the meal by stirring it into boiling water, and letting it boil from thirty to forty minutes, by which time it would swell to three times its capacity before boiling. The pigs selected were all doing well upon uncooked food. I put four in two pens, side by side; weighed them four different times; kept an exact account of their weight at each weighing, and weighed them about the same hour of the day each time. I fed two of them with cooked meal four weeks, and they were not so heavy, by eleven pounds, as at the time I commenced. They were weighed twice, during the time. They ate four bushels of meal. I fed eight and one-fourth bushels of meal, uncooked, to the others, and they gained eighty-two pounds. I then fed the last named pigs three and one-half bushels of cooked meal, and, in three weeks, they lost four pounds. I fed five and a half bushels of raw meal to those, first fed on cooked food, and, in three weeks, they gained sixty-one pounds. I think this proves conclusively that we cannot fatten swine with profit, on cooked food. Had my pigs never had any meal, but what had been cooked, I presume they might have improved a little upon it; but, taking them from uncooked, and putting them upon cooked food, they did not eat quite so freely at first, as they otherwise might. Hence, a loss. But when we remember, that even a hog cannot be so *hoggish*, as to more than fill himself, and one quart of cooked meal would fill them, as much as three quarts of uncooked meal, we can easily see that a pig, fed on uncooked meal, would eat nearly or quite three times the value of meal, compared with the one fed on cooked food, provided cooking did not increase the value. Even if cooking increases the value one-third, then a pig would not be able to eat enough to fatten readily, as it must take a certain amount of food to support life, whether cooked or uncooked. Taking swine from uncooked food and putting them upon cooked food, in both cases, they lost in weight. On the other hand, taking them from cooked food and giving them uncooked food, there was a fair gain.

SUNDERLAND, Oct. 8, 1855.

REPORT ON BREAD.

BY LEVI STOCKBRIDGE.

According to the best recollection of your committee, the first successful bread-maker, of whom we have any account, was Mrs. Abraham; who, on a certain occasion, by the direction of her husband, took "three measures of fine meal" and after kneading, baked it on the hearth. This was before the invention of brick ovens and cooking stoves, but she might have had one of those old fashioned tin ovens, which, on the hearth before a brisk fire, performed its work finely. Whether she did or not, is a matter of little consequence; but she made bread of the *first quality*—fit for *angels* to eat. From the days of that lady to the present time, the art of bread-making has been one of prime importance, and it will always continue so. We sincerely hope the ladies of the present day, will, in this respect, follow the example of their "Illustrious Predecessor," while they are not a whit behind her in the moral virtues. Judging from the exhibition of to-day, there is many a fair bread-maker, who is worthy of being the wife of as worthy a husband as Abraham. Such white loaves as those on which we feasted our eyes, and our tastes, we have seldom seen. We are convinced, that, notwithstanding it is written "man shall not live by bread alone," yet that he might do so, with pleasure and profit. Your Committee did not stop to inquire if the hands that made this bread were decked with rings and accustomed to the piano; neither do we care. Only give us the bread *first;* and, afterwards, things less necessary, ad infinitum. This being the opinion of the committee, we say to all mothers, learn your daughters to make bread, and to take pride in making *good* bread, fit for a king's—that is, a farmer's table. Then, and only then, should they aspire to the honor and dignity of presiding at his table. As the bread was all good, we have awarded, in addition to the premiums, to each of our fair bread-makers, A Farmer.

REPORT ON BUTTER.

BY REV. W. H. BEAMAN.

At the Fair, the committee noticed three hundred pounds of golden butter, and awarded premiums, according to the following principles:

Flavor, color and form indicate the character of butter. Flavor is first in importance, color the second and form the third. Of two lumps of butter,

flavored alike, but of different color, that which has the deepest color is the richest, and most pleasant to the palate. And the nicer the form—other things being equal—the better is the article, for the eye, which loves to discriminate, is then gratified, as well as the taste. She who can make butter of fine taste and rich color and impress on it a beautiful form is worthy of a premium, and will do her husband good and not evil, all the days of her life.

The competitors furnished statements of the process of butter-making. Would it not be well, in future, to state how the cows were fed; what kinds of churns were used; how long it takes to bring the butter; and whether a discovery has been made for preventing, or removing "the witchery," which sometimes gets into cream, and which tries the patience and tasks the strength of those who toil at the churn.

The statements of the successful competitors for premiums have been preserved; and what is peculiar to each is here given, with some verbal variation and curtailment.

Milk is uniformly strained into tin pans—generally stands in a cool, airy place, from thirty-six to forty-eight hours. The cream is put into tin or stone, and daily stirred.

No. 1 says, Cream is churned twice a week; after churning, the butter is thoroughly washed before it is taken from the churn, then worked and salted, and after a few hours worked again and formed into lumps. No. 2. Milk strained into a tin pail, and set in a boiler of hot water till at a temperature of 120°; then put in pans, in a cool place, thirty-six to forty-eight hours; cream stirred often, so as to have all that is to be churned at a time well mixed, twenty-four hours before churning; cream at a temperature below 60° when churned; one ounce of salt to one pound of butter; second working twenty-four hours after first. No. 4. "Cream is stirred and salted when new is added." No. 5. "Cream is stirred, morning and evening, and churned twice a week." No. 6. "Churning once in four days." No. 7. "Churned in a crank churn." No. 8. "Skim the cream as free as possible from milk; for one quart of thick cream stir in a table spoonful of salt; when churned to butter, add one ounce of salt to a pound; work out all particles of buttermilk at last working"

REPORT ON STOCK.

BY LEANDER WETHERELL.

In the range of subjects embraced in Rural Economy, there is none of greater importance to the farmer, than that assigned to this Committee. The word "Stock," in Agriculture, includes all the Domestic Animals, from the Bantam fowl to the most beautiful and elegant horse of the "Black Hawk," breed. To treat of this subject by presenting a report containing suggestions concerning all these various genera and species, with their almost infinite varieties, is not expected; for the subject has been classified, the labor divided and given to different Committees. This Committee is expected to treat specifically of neat stock, or cattle.

The Animal Kingdom is divided into Orders, Genera and Species, the latter including Varieties, Races or Breeds, which include animals of the same species, being essentially alike, differing only in minor characteristics, caused by climate, food and care in breeding. Species designates animals that are alike in character, possessing power of reproduction, however unlike in general appearance these Races may be. Compare the elegant, thorough-bred Short Horn, or Durham Bull, with the most diminutive "scrub," and no one will fail to observe the striking difference, yet the general specific characteristics are the same. The difference is the result of careful attention in breeding.

The word "Breed" means a progeny, descended from the same stock. It is an old maxim, founded on a well known, fixed law of Nature, "That like begets like." A breed of cattle, therefore, includes a Race or Variety, as the Devon, or Hereford breed. These have fixed qualities that are well known and understood by Stock-breeders—qualities that can be, with the certainty of a well known law of the animal economy, communicated to their progeny. This law is everywhere confirmed in the history of domestic animals. The Merino sheep furnish a striking illustration. So does the Arabian horse. "Native Cattle" cannot, according to this definition, be called a "breed;" for, they are destitute of the *marks* of breeding, as here indicated, which are agreed to by stock-breeders. But, says the objector, if admitted "That like begets like," is not this law as true of natives, as of well-bred cattle? Undoubtedly. The uncertainty lies in this: no one can divine whose likeness the progeny will be, whether that of the bull or some one of his "scrub" ancestry, with which his blood is mingled.

In view, then, of the fact, that about three-fourths of the farming capital is invested in stock, stock-feed and stock accommodations, the subject of stock-breeding and raising, becomes, at once, a matter for careful and intelligent consideration by every farmer, who wishes to make this part of his business as profitable as possible. This brings up the subject of breeds, or

no breed, or of well-bred and native cattle. Both the "natives," and the thorough-breds have their advocates and their contemptuous revilers. Now, what every enterprising farmer wants to know, is, whether it is better for him to invest in native, or well-bred stock, or both;—also, to inquire concerning the different breeds, all of which have their enthusiastic advocates; whether it is better to keep them pure, or to cross with "natives." Instead of fully discussing these various topics as the Committee would gladly do, it can only make a few suggestions which it is confidently hoped will serve to awaken a greater interest and desire in the Hampshire Society farmers, to improve their stock, and thus receive more liberal dividends for money thus invested.

Notwithstanding the intention of the Committee to enumerate the various breeds of cattle in England, giving their general characteristics, &c., it is deemed inexpedient to do so now. Those most popular in this country, are the Jerseys, (sometimes called Alderneys,) Devons, Ayrshires, Herefords and Durhams, names indicating that part of England, where the breeds were cultivated and improved. In determining which of these is best, or which is most desirable, the inquiries come up, whether you want to breed cattle for the shambles, the dairy, or for work, or for all these purposes.

Of these different breeds, the Durhams, or Short-Horns, are by far the most elegant and beautiful of the cattle-kind. They are the Dukes, or the first order of nobility of all the well-bred animals of the bovine Races. For the shambles, they have no equals; for work and travel they are not excelled. Says a gentleman who purchases oxen for quarry work, in a neighboring State, after an experience of twenty years, "I have never seen the grade Short-Horns excelled." "As a breed," says another, "the Short-Horns are remarkable for their milching qualities." "Grade Short-Horns are almost universally good milchers." Yet it is said by the advocates of other breeds, that the Durhams are deficient in both milching and working qualities. The milching qualities of a breed may be transmitted to their progeny, with as much certainty, as those of form or color. This may have been neglected by some Durham breeders, and thus have furnished occasion for this remark. Yet every well-informed stock-breeder knows that there are excellent milchers among the Short-Horns. In fine, there is no doubt, that the "Improved Short-Horns," when well fed, are the most profitable breed of cattle known.

The Committee, having enjoyed an opportunity of attending a large number of County and State Fairs, may be allowed to give some of the fruits of personal observation, the present season.

In Western New York, at the Monroe Co. Fair, the Devons greatly predominated over all other breeds. At the Ontario Co. Fair, held at Canandaguia, the Durhams far exceeded all others, both in number and quality. Here was exhibited about forty head of fine, thorough-bred Short-Horns. Some of them were from the Herd of the late Henry Clay. A cow and calf were sold here at auction for over four hundred dollars. Many other animals of this breed were sold for high prices. At the Livingston Co. Fair at

Geneseo, the Short-Horns bore off the palm. This was deemed the best county exhibition of Stock in the Empire State. The grade Stock was exceedingly fine. At the New York State Fair at Elmira, the Durhams were more numerous and excellent, than those of any other breed. There were but few Herefords, Devons, Ayrshires and Jerseys. At the Illinois State Fair in Chicago, the Durhams far excelled all others in elegance, beauty and numbers. Of all the exhibitions of Stock seen during the past autumn, as well as those observed on all former occasions, none equalled the Stock-show at the Illinois State Fair. The most celebrated stock-breeders in the "Garden State" are J. N. Brown, Esq., and Col. Dunlap, the former of Sangammon county, and the latter of Morgan county, both of Central Illinois. Mr. Brown has about fifty thorough-bred Short-Horns, and about five hundred head of grades and natives. Mr. Dunlap has also a large number of thorough-breds. The stock of these two enterprising farmers attracted much attention. If any of the readers of this Report should be moved to procure a fine and elegant pair of thorough-bred Durhams, the Committee can refer them to no better man to fill such an order, than James N. Brown of "Island Grove," Sangammon Co., Ill.

The Devons are deemed a good breed for poor farms, and short feed. It is said that the native cattle of this country have a strong infusion of the Devon blood, being mingled more or less with that of the various other Races of the small breeds. Their color is a mahogany red. They are sometimes called "improved natives."

The Herefords are a large breed, and highly recommended by some breeders for dairy and work. Their color is a dark red, or reddish-brown, with white faces, with more or less white on the back and belly. The Durhams are gaining in the home of the Herefords, thus showing that their superiority is acknowledged, even by the breeders of Herefords.

The Ayrshires possess excellent dairy qualities. Mr. Ayton describes them as a puny race, in his work on "Dairy Husbandry," published in 1825. "They are mostly of a black color, masked with white on the face, back and flanks,—few of the cows yielding more than from a gallon and a half to two gallons of milk per day, in the best part of the season, and when fat, weighing not more than twenty stones." Their blood is mingled with that of the Alderneys. The cows are very hardy, docile and gentle, and will subsist on ordinary food. Few steers of this breed are reared for grazing. "Those, therefore, who suppose that the Ayrshire breed combines the properties of dairy and grazing stock, entirely mistake its distinctive character. For dairy purposes it occupies a high rank, like its kindred, Jerseys, and like the latter, an inferior place for grazing and fattening."

The Alderneys are famous only as milchers. They are a small and ill-formed race. The color of this breed is, usually a light red or fawn, mixed with white; but individuals may be found that are black, mixed with white or dun, and sometimes cream-colored. To preserve the purity of this race, "a law was enacted in 1789, and is still preserved on the statute book, by which the importation into Jersey of any cow, heifer, calf or bull, is prohib-

ited under the penalty of two hundred livres, with forfeiture of the boat and tackle, and a further penalty of fifty livres is imposed on any sailor on board who does not inform of the attempt. The animal itself is to be immediately slaughtered, and its flesh given to the poor." This breed is supposed to be of Scandinavian origin.

The Committee would gladly enumerate the qualities of the Glamorganshire, Sussex, Galloway, Kerry and other breeds, were it deemed practically necessary. The best breeds have been named, and scarcely more, not for the want of matter, but for the lack of space to enlarge.

Determining on the most valuable breeds mentioned according to the true test, not by the profits yielded between buying and selling, but by that which it yields, says Low, to the breeder and the feeder, conjointly, from its birth to its maturity: this being the test, the Short Horns, or Durhams, merit what has been most justly awarded to them, the preference over all other breeds, known to stock breeders and graziers.

It having been unanimously decided by both practical and scientific observers, that "the male has far more influence than the female in fixing the characteristics of the progeny," the way for farmers to improve their stock to the best advantage, is, to procure a thorough-bred bull of the breed desired. No such farmer will ever keep a grade bull, though it be superior to its well-bred sire, in form and symmetry; for remember, purity of blood is everything in this matter. Let farmers unite, if no one feels able to procure a thorough-bred animal of the breed desired, and purchase such an one, and all will soon see the advantage.

For raising grade stock with native cows, the "Improved Short-Horns" are altogether the best; for this grade stock makes good milchers, good working oxen and good cattle for grazing and fattening. The Short-Horns are not, as you sometimes hear it said, universally white, or nearly so. They are seen of every variety of color, that can be made by mixing red and white. They may be spotted, or a roan, or a creamy white, or pure red. The hair of the well-bred animals is of a soft, silky feeling, and of a superior quality to that of any other breed.

It is hoped that others will strive to emulate the worthy example of Prof. Fowler and L. Sweetser, Esq., of Amherst, Paoli Lathrop of South Hadley, and H. Hunt of New Salem, who have procured some well-bred Alderneys, Ayrshires, Durhams and Devons. Let this work of improvement go on until every "scrub bull" of the ancestry of "Pharaoh's lean kine" shall be banished from the hills and valleys of Hampshire and Franklin counties. Let thorough-bred bulls only be employed—those who pedigree is pure, and recorded in the Herd Book.

The pedigree of animals is registered in Herd Books as follows:

"Logan, 95 American Herd Book, roan, bred by Paoli Lathrop of So. Hadley Falls, calved August 19th, 1844, sired by North American (No. 16 American Herd Book) Dam Louisa, by Boston, (1735, English Herd Book) Grand Dam, cow Boston by Sir Charles, (1440 do.) Great G. Dam Dutchess by Wellington, (683 do.) G. G. G. Dam—by Admiral (41 do.) G. G. G. G.

Dam—by Sir Henry (1444 do.) G. G. G. G. G. Dam—by Colonel (1440 do.) G. G. G. G. G. G. Dam—by Son of Hubback (310 do.) G. G. G. G. G. G. G. Dam by Hubback (319 do.)," the celebrated bull from which have descended the "Improved Short-Horns" of the present day.

The Committee was unavoidably prevented from attending the exhibition of Stock at the late Hampshire Cattle Show and Fair. It is gratifying, however, to learn, that it was superior to any former Show of Cattle. H. N. Rust, of South Deerfield, exhibited a well-bred Devon bull; L. Sweetser, of Amherst, six fine Ayrshires; H. Hunt, of New Salem, exhibited two Devon bulls. There were, also, several fine grade animals, thus demonstrating the advantages of crossing the improved breeds with the common native stock. There were several pairs of grade oxen that attracted much attention.

It is hoped that another year's exhibition will include a much larger show of pure, thoroughbred animals, such as have their pedigree recorded either in the English or the American Herd Book. No others should be permitted to take premiums as pure blooded animals, of the breeds which they severally represent. Purity of blood, let it be borne in mind, is of the *utmost importance* to breeders. Committees should be judges of *pedigree*, as well as of points of excellence. And these are really the tests, which should decide the merits of such animals. It is no matter how fine and symmetrical the form, if the animal is a bull, and not thoroughbred, do not suffer yourself to be deceived by the claims of the owner, that he is just as good for stock improvement, as any animal whose pedigree can be traced back in a direct line to Hubback; for it is not true. Let it be repeated, and received as a maxim in this matter, that *none but pure thoroughbred bulls* will serve the highest purpose in crossing with natives. *Purity of blood* is the *first quality* to be considered in a bull.

Premiums and Gratuities.

APPLE TREES.

George Chandler, Belchertown, $5
Moses Stebbins, Deerfield, 3

NURSERIES.

Parsons Warner, Sunderland, $3

RECLAIMED ORCHARD.

Daniel Ballard, Wendell, $2

FOREST TREES.

T. P. Huntington, Hadley, gr. $6

MANURES.

Albert Montague, Sunderland, $6

CORN CROPS.

Austin L. Clark, Sunderland, gr. $3
J. Edwards Porter, Hadley, gr. 2

RYE CROP.

Wash. Miller, Sunderland, gr. $2

BROOM CORN.

Albert Montague, Sunderland, $3
N. Austin Smith, " 2

OATS.

Albert Montague, Sunderland, $3

POTATOES.

Nathaniel Smith, Sunderland, $4
O. & F. H. Williams, " gr. 2

CARROTS.

J. Edwards Porter, Hadley, gr. $2
O. & F.H.Williams, Sunderland, gr. 1

TURNIPS.

Levi P. Warner, Sunderland, $2

THE DAIRY.

Theo. G. Huntington, Hadley, gr. $6

STRINGS OF CATTLE.

Leverett, $15
Hadley, 10

BULLS.

Alfred Baker, Amherst, $6
John Russell, Hadley, 4
Horace Hunt, New Salem, 5
Luke Sweetser, Amherst, 5
William C. Fowler, Amherst, 5
Horatio N. Rust, Deerfield, 3

WORKING OXEN FIVE YEARS OLD.

E. Pomeroy Cutler, Amherst, $4
Linus Green, Hadley, 3
Aretas J. Cadwell, Amherst, 2
Levi Hawley, Hadley, U. S. Report.
Ansel A. Rankin, Pelham, do.

WORKING OXEN, FOUR YEARS OLD.

Nelson Smith, Granby, $3
Elijah Cowles, Hadley, 2

STEERS, THREE YEARS OLD.

L. W. Hannum, Belchertown, $4
Asahel Gates, Amherst, 3
Nelson Smith, Granby, 2

STEERS, TWO YEARS OLD.

Calvin D. Eaton, Pelham, $3
Russell T. Wheelock, Amherst, 2

STEERS, ONE YEAR OLD.

Willard M. Kellogg, Amherst, $2
William Boltwood, Amherst, 1

CALVES.

Horace Hunt, New Salem, $2
F. Gaylord, Amherst, The Farmer.
Alfred Baker, Amherst, The Farmer.

CATTLE FOR THE STALL.

John D. Ely, Deerfield, $5

Moses Stebbins, Deerfield, 4
George Smith, Granby, 3
Moses Stebbins, Deerfield, gr. 2

MILCH COWS.

Bela U. Dickinson, Amherst, $3

HEIFERS, TWO YEARS OLD.

Baxter Eastman, Amherst, $3
Ethan D. Hubbard, Amherst, 2

YEARLING HEIFERS.

Luke Sweetser, Amherst, $2
Spencer Church, Amherst, 1

SHEEP.

Daniel B. Crocker, Sunderland, $2
Oliver Williams, Sunderland, 1
Harrison Field, Leverett, U. S. Rep.

BOARS.

Hubbard Graves, Sunderland, $3
O. Richardson, Granby, 2

SOWS AND PIGS.

Austin Russell, Sunderland, $3
Hubbard Graves, Sunderland, 2

POULTRY.

Horatio N. Rust, Deerfield, $2

STALLIONS.

Sumner Bigelow, Greenfield, $6
Richard Dean, New Salem, 4

COLTS, THREE YEARS OLD.

John M. Smith, Goshen, $2
Guy C. Munsell, Amherst, 1
C. Paige, Prescott, Farmer.

COLTS, TWO YEARS OLD.

Joshua T. Brown, Sunderland, $1.50
John Sisson, Belchertown, 1.00

COLTS, ONE YEAR OLD.

William H. Smith, Leverett, $1
W. W. Dickinson, Amherst, Farmer.

CARRIAGE HORSES IN PAIRS.

Enos F. Cook, Amherst, $3
Ansel A. Rankin, Pelham, 2
A. J. Cadwell, Amherst, Report.

SINGLE CARRIAGE HORSES.

William S. Clark, Amherst, $2
Wareham C. Gilbert, Belchertown, 1

DRAFT HORSES.

Ransom Nutting, Leverett, $3
Levi D. Cowles, Amherst, 2
Samuel F. Dudley, Shutesbury, 1

FARM HORSES.

Wm. A Smith, Granby, $3
Austin Russell, Sunderland, 2

BREEDING MARES AND COLTS.

Asa Wilson, Belchertown, $3
Moses B. Green, Amherst, 2
Ransom Cowles, Amherst, 1
A. C. Marshall, do., Farmer.

PLOWING WITH DOUBLE PLOWS.

Danforth K. Bangs, Amherst, $5
Levi D. Cowles, Amherst, 4

PLOWING WITH SINGLE OX TEAMS.

Ansel A. Rankin, Pelham, $3
Elijah Cowles, Hadley, 2

PLOWING WITH HORSES.

J. W. Hobart, Amherst, $4
S. C. Wilder, Hadley, 3
Edmund Hobart, Amherst, 2
Wm. W. Smith, Amherst, 1
Levi D. Cowles, Amherst, Farmer.

SUBSOIL PLOWING.

Albert Montague, Sunderland, gr. $3
Horace Kellogg, Jr., Amherst, gr. 1

HONEY.

Austin Russell, Sunderland, $1
S. D. Crocker, do., Farmer.
D. S. Cowles, Hadley, gr. U. S. Rep.

WHEAT FLOUR.

D. D. & J. Whittemore, Jr., Sunderland, $1
J. M. Smith, do., Farmer.
Levi P. Warner, do., Farmer.

RYE FLOUR.

Sylvester Brown, Sunderland, $1
T. G. Huntington, Hadley, Farmer.

BUTTER.

Mrs. Simeon Clark, Amherst, $4.00
Mrs. Chester Cowles, Amherst, 3.50
Mrs. Moses Field, Leverett, 3.00
Mrs. B. Smith, Sunderland, 2.50
Mrs. G. C. Munsell, Amherst, 2.00
Mrs. T. Graves, Sunderland, 1.50
Mrs. B. U. Dickinson, Amherst, 1.00
Mrs. N. D. Adams, Shutesbury, The Farmer.

CHEESE.

Charlotte Dickinson, Amherst, $2.50
Mrs. O. Williams, Amherst, 2.00
Mrs. A. Eastman, Amherst, 1.50
Mrs. G. Chandler, Belchertown, 1.00
Mrs. S. Dickinson, Amherst, Farmer.

WHEAT BREAD.

Mrs. E. P. Hallock, Amherst, $1.50
Mrs. C. B. Trow, Sunderland, 1.00
Mrs. L. Adams, Hadley, Farmer.

RYE BREAD.

Mrs. A. Hobart, Sunderland, $1.50
Mrs. H. Henderson, Amherst, 1.00
Mrs. N. Smith, Sunderland, Farmer.

RYE AND INDIAN BREAD.

Mrs. Orus Ball, Leverett, $1.00
Miss Mary Brooks, Sunderland, .50
Mrs. P. Spaulding, Montague, .50

APPLES.

Josiah Ayres, Amherst, $2.00
Austin Eastman, Amherst, 1.75
E. P. Cutler, Amherst, 1.50
Parsons Warner, Sunderland, 1.25
John S. Adams, Amherst, 1.00
Ransom Dickinson, Sunderland, .75
Harrison O. Field, Leverett, .50

PEARS.

Orrin Sage, Ware, .75

QUINCES.

Horace Henderson, Amherst, .75
John Russell, Pelham, .50

GRAPES.

Orrin Sage, Ware, gr. $2.00
Ransom Dickinson, Sunderland, .75
John S. Adams, Amherst, .50
Charles Adams, Amherst, .75
Chester Ashley, Leverett, .50
Mrs. H. D. Boutwell, Leverett, .75

MISCELLANEOUS.

Cummings Fish, Amherst, .50
Mrs. C. D. Dickinson, Hadley, .25
Mrs. John Dickinson, Amherst, .25
Orrin Sage, Ware, .25
Mrs. Electa Smith, Amherst, .25
George Chandler, Belchertown, .25
Mrs. Alvan Barnard, Amherst, .25

DOMESTIC MANUFACTURES.

Austin L. Clark, Sunderland, .75
Mrs. Timothy Graves, do., .75
Mrs. Lyscom Spear, Amherst, .75
Mrs. Silas Howard, Belchertown, .75
Mrs. Joseph P. Gray, Amherst, .75
Mrs. S. W. Kenney, do. .50
Mrs. Enoch Cowles, do. .50
Mrs. Catherine Kellogg, do. .50
Mrs. T. Kimberley, do. .50
Miss Catherine Kelley, do. .50
Miss Lovina Dickinson, do. .50
Miss Harriet G. Parker, Montague, .50
Mrs. E. P. Dickinson, Sunderland, .50
Miss Clarinda Field, Leverett, .50
Mrs. A. Montague, Sunderland, .50
L. M. Hills & Son, Amherst, .50
Mrs. S. Montague, Sunderland, .25
Mrs. Wm. Kellogg, Amherst, .25
Mrs. Robert Cutler, do. .25
Mrs. Electa Smith, do. .25
Mrs. Silas Cowles, Hadley, .25
Mrs. Orrin Payne, Montague, .25
Mrs. David Stiles, Middleton, .25
Mrs. Reuben Puffer, Amherst, .25
Mrs. Chittenden, Sunderland, .25

FANCY ARTICLES.

Mrs. F. Owen, Belchertown, $1.25
Miss Mary Ann Cutler, Amherst, .87
Mrs. Lucretia Pasco, Hadley, .50
Miss Frances Emerson, Amherst, .37
Mrs. J. E. Smith, Hadley, .37
Miss E. Robinson, Sunderland, .25
Miss Kate Howland, Amherst, .25
Mrs. Linus Green, Hadley, .25
Miss Martha L. Allen, Amherst, .25
Miss A. R. Bentley, do. .25
Miss Lucy Fitch, do. .25
Mrs. Maria Graff, Northampton, .75
Miss Martha L. Pease, Ludlow, .37
Mrs. A. Hubbard, Sunderland, .37
Mrs. A. Hobart, do. .25
Mrs. Sarah Turner, Amherst, .50
Miss Elvira Hobart, do. .37
Mrs. Enoch Cowles, do. .25

FLOWERS.

Miss E. S. Graves, Sunderland, $1.00
Miss Sarah Ferry, Amherst, .75
Miss Maria Nims, Amherst, .50
Miss Sarah Russell, Hadley, .50
Miss Susie Sheldon, Hadley, .25

AGRICULTURAL IMPLEMENTS.

H. O. Williams, Sunderland, $3.00
Alvin Barnard, Amherst, Report.
Whittemore & Squiers, Chicopee, Report and 1.00
Orrin Johnson, Amherst, Report.
H. O. Williams, Sunderland, do.
S. Johnson, Templeton, Report and 1.50

Walter Fuller, Amherst, Report.
John Clark, Hadley, Report and 50c.
R. C. Russell, Amherst, Report.
O. M. Clapp, do., Report and 1.50
Joseph Adams & Sons, Hadley, Report and 1.00
Joseph Colton, W. Springfield, 1.00
B. F. Allen & Co., Amherst, Report and 1.00
Charles H. Field, Leverett, Report.

MAPLE SUGAR.

Albert Montague, Sunderland, $1.00
Peter Spaulding, Montague, .75
Horace Henderson, Amherst, Farmer.

VEGETABLES.

M. F. Dickinson, Jr., Amherst, $1.00
Edwin Chapin, Hadley, 1.00
Samuel Kimball, Enfield, .50
Rodney Ayres, Granby, .50
Christopher Paige, Prescott, .62
William Boltwood, Amherst, .62
David S. Cowles, Hadley, .50
James H. Winter, Amherst, .50
Asahel Gates, do. .25
Timothy Smith, do. .25
Parsons Warner, Sunderland, .25
Levi P. Warner, do. .50
Sylvester Brown, do. .25
Ransom Dickinson, do. .25
Alfred Baker, Amherst, .25
Moses Stebbins, Deerfield, .25
Lyman Gunn, Amherst, .25
George Stockwell, Amherst, .25
Oliver Watson, do. .25
Alvin Barnard, do. .37
E. Ames, Jr., Conway, .37
A. L. Clark, Sunderland, .25
O. & F. H. Williams, Sunderland, .37
Albert Montague, Sunderland, .25
George Warner, Amherst, .12
Moses B. Green, do. .12
Linus Green, Hadley, .12
Austin Loomis, Amherst, .12
E. P. Dickinson, Sunderland, .12
C. B. Hubbard, do. .12
Ezra Ingram, Amherst, .12
Eliphalet Clark, Sunderland, .12
Austin Smith, do. .12

FINE ARTS.

S. C. Wilder, Hadley, .75
Miss Charlotte Haskell, Amherst, .75
Mrs. Geo. Cutler, do. .50
Mrs. Sarah Turner, do. .50
Mrs. H. D. Boutwell, Leverett, .37
Mrs. Alvin Barnard, Amherst, .37
Miss Harriet Kellogg, Hadley, .37
Miss Martha A. Dexter, Amherst, .37
Miss Harriet Russell, Montague, .62
Mrs. A. J. Stebbins, Deerfield, .37
Mrs. J. E. Smith, Hadley, .25
S. F. Cooley, Hadley, .25
Miss Martha Barnard, Amherst, .25
Miss Octavia Wheelock, do. .25
Miss Fanny Russell, Hadley, .25
Mrs. Dolly F. Wiley, Sunderland, .25
J. L. Lovell, Brattleboro', Vt., $2.00

REPORT OF THE TREASURER.

RECEIPTS.

From the Commonwealth,	$600 00
" 65 new Life Members,	250 25
" income of the Fund,	205 03
Total Receipts of the year,	$1055 28

DISBURSEMENTS.

Premiums Awarded and Payable,	$346 87
Printing 700 copies of Transactions,	105 00
Current Expenses,	352 16
Total Disbursements of the year,	$804 03

PERMANENT FUND.

Loans on Mortgages of Real Estate,	$2427 77
Other Loans, at Interest,	180 72
Outstanding Notes of Life Members,	535 00
Cattle Pens, Tables, &c., at cost,	135 10
Cash in Treasury,	291 61
Total Permanent Fund,	$3570 20

DISTRIBUTION OF PREMIUMS.

Amherst,	$119.57	Montague,	2.62
Belchertown,	17.25	New Salem,	11.00
Brattleboro', Vt.,	2.00	Northampton,	.75
Chicopee,	1.00	Pelham,	8.50
Conway,	.37	Prescott,	1.12
Deerfield,	19.62	Shutesbury,	1.50
Enfield,	.50	Sunderland,	77.97
Goshen,	2.00	Templeton,	1.50
Granby,	13.50	Ware,	3.00
Greenfield,	6.00	Wendell,	2.00
Hadley,	48.36	West Springfield,	1.00
Leverett,	25.62		
Ludlow,	.37	Total,	$367.37
Middleton,	.25		

Whole number of premiums awarded,	260
Different persons, who received premiums,	160
Number of Towns, which received premiums,	25

Officers of the Society.

President,

WILLIAM P. DICKINSON, of Hadley.

Vice Presidents,

HORACE HENDERSON, of Sunderland.
COTTON SMITH, of Amherst.
GEORGE CHANDLER, of Belchertown.
ALDEN C. FIELD, of Leverett.
RODNEY AYRES, of Granby.
EZRA INGRAM, of Amherst.

Secretary and Treasurer,

JAMES W. BOYDEN, of Amherst.

Executive Committee.

P. SMITH WILLIAMS, of Hadley.
ASA L. FIELD, of Leverett.
ANSEL A. RANKIN, of Pelham.
LYMAN W. HANNUM, of Belchertown.
AVERY D. HUBBARD, of Sunderland.
RUSSELL T. WHEELOCK, of Amherst.
CYRUS STEBBINS, of Granby.

Life Members.

HONORARY LIFE MEMBERS.

Prof. W. C. Fowler, Amherst.
Hon. M. P. Wilder, Dorchester.
W. C. Goldthwait, A. M., Westfield.
Prof. F. D. Huntington, Cambridge.
Hon. George T. Davis, Greenfield.
Z. C. Montague, A. M., Amherst.
C. L. Flint, Sec'y State Board of Ag.
Hon. J. C. Gray, Boston.

LIFE MEMBERS.

AMHERST.

Adams, Charles
Adams, Charles Mrs.
Adams, John S.
Adams, John S. Mrs.
Ainsworth, Forrester
Allen, Benjamin W.
*Allen, Hiram H.
Allen, Hiram H. Mrs.
Allen, Martha L. Miss
Allen Nathaniel
*Ames, Edwin
Ayres, Elijah
Ayres, Elijah Mrs.
Ayres, Josiah
Baker, Alfred
Baker, Alfred Mrs.
Baker, Enos
Baker, George
Baker, George Mrs.
Baker, Joel
Bangs, Charles H.
Bangs, Danforth K.
Bangs, Danforth K. Mrs.
Barnard, Alvin
Barnard, Alvin Mrs.
Bartlett, David
Bartlett, David Mrs.
Belden, Aaron
Belden, Horace
Belden, Timothy C.
Blanchard, Horace
*Blodgett, Henry
*Bogue, Elisha
Bogue, Elisha Mrs.
Boltwood Lucius
Boltwood, William
Boltwood, William Mrs.
Boyden, James W.
Boyden, James W. Mrs.
Bridgman, Guilford
Bridgman, Henry A.
**Bridgman Jonathan
Bridgman, Mary S. Miss
Briggs, Ebenezer
Briggs, Ebenezer Mrs.
Burnham, George Jr.
Burnham, Geo. Jr. Mrs.
Cadwell, Aretas J.
Cadwell, Aretas J. Mrs.
Carter, Samuel C.
Carter, Samuel C. Mrs.
Chandler, Aaron M.
Church, Elihu S.
Church Elihu S. Mrs.
Church, Spencer
Clark, Simeon
Clark, Simeon Mrs.
Clark, W. S. Prof.
Clark, W. S. Mrs.
Cobb, Henry
Conkey, Ithamar
Conkey, Ithamar F.
Conkey, I. F. Mrs.
Converse, Daniel
Converse, D. Mrs.
Cooke, David S.
Cooke, D. S. Mrs.
Cook, Enos F.
Cooley, Alden
Cooley, Moses D.
Cowles, Chester
Cowles, Chester Mrs.
Cowles, Clinton J.
Cowles, C. J. Mrs.
Cowles, Enoch
Cowles, Enoch Mrs.
Cowles, Erastus
Cowles, Erastus Mrs.
Cowles, James
Cowles, James Mrs.
Cowles, Jonathan
Cowles, Jonathan Mrs.
Cowles, Jonathan Jr.
Cowles, J. Jr. Mrs.
*Cowles, Julia B. Miss
Cowles, Levi D.
Cowles, Levi D. Mrs.
Cowles, Moses
Cowles, Moses Mrs.
*Cowles, Oliver
Cowles, Ransom
Cowles, Ransom Mrs.
Cowles, Submit Mrs.
Curtis, Oliver H.
Curtis, Oliver H. Mrs.
Cushman, John R.
Cushman, John R. Mrs.
Cutler, Elisha P.
Cutler, Esther Miss
Cutler, George
Cutler, George Mrs.
Cutler, Robert
Cutler, Robert Mrs.
Cutler, Samuel F.
Cutler, William
Cutler, William Mrs.
Dana, Joseph
Darling, Benjamin R.
Dexter, David
Dexter, David Mrs.
Dickinson, Asa & Noble
Dickinson, Bela U.
Dickinson, Bela U. Mrs.

* Deceased.

Dickinson, Charlotte Miss
Dickinson, Daniel
Dickinson, Daniel Mrs.
Dickinson, Daniel A.
Dickinson, Edward
Dickinson, Edward Mrs.
Dickinson, Emily E. Miss
Dickinson, Enos
Dickinson, Enos Mrs.
Dickinson, Enos 2d
Dickinson, Enos 2d Mrs.
Dickinson, John
Dickinson, John Mrs.
Dickinson, Joseph
Dickinson, Josiah
Dickinson, L. A. Miss
Dickinson, Lovina Miss
Dickinson, Lucius
Dickinson, Lydia E. Miss
Dickinson, Marquis F.
Dickinson, M. F. Mrs.
Dickinson, Moses B.
Dickinson, M. B. Mrs.
Dickinson, Oliver
Dickinson, Oliver Mrs.
Dickinson, Samuel S.
Dickinson, S. S. Mrs.
Dickinson, Sarah M. Miss
Dickinson, Waitstill
Dickinson, Waitstill Mrs.
Dickinson, William
Dickinson, William 2d
Dickinson, Wm. Austin
Dickinson, William E.
Dickinson, William W.
Draper, Lewis L.
Dutton, Alonzo
Dutton, Alonzo Mrs.
Dwight, E. S. Rev.
Dwight, E. S. Mrs.
Eastman, Austin
Eastman, Austin Mrs.
Eastman, Baxter
Eastman, Baxter Mrs.
Eastman, Solomon K.
*Eastman, S. K. Mrs.
Edwards, Simeon
Emerson, Sarah E. Mrs.
Faxon, William
Ferry, Sarah P. Miss
Field, D'Estaing Mrs.
Fish, Cummings
Fish, Seth Dr.
Fish, Seth Mrs.
Fisher, George E. Rev.
Fitch, Newton
Fitch, Newton Mrs.
French, Mary F. Miss
Fuller, Walter
Gaylord, Flavel
Gaylord, Eleazer
Gaylord, William
Gaylord, William, Mrs.
Goodale, Noble T.
Goodale, Rufus
Goodale, Rufus Mrs.
Gray, Joseph P.
Gray, Joseph P. Mrs.
*Green, Eunice Miss
Green, Moses B.
*Gridley, T. J. Dr.
Grout, Austin
Gunn, Lyman
Gunn, William F.
Hall, John B.
Hallock, Leavitt
Hallock, Leavitt Mrs.
Hammond, Salem
Hammond, Salem Mrs.
Harlow, Nathaniel L.
Hastings, Edmund
Hastings, Edmund Mrs.
Hastings, Joseph C.
Hastings, J. C. Mrs.
Hastings, Thomas
Hastings, Thomas Mrs.
Haven, Joseph Prof.
Haven, Joseph Mrs.
Hawley, Charles M.
Hawley, Harrison
Hawley, Justin
Hayward, Charles F.
Hayward, C. F. Mrs.
Henderson, Horace
Henderson, Horace Mrs.
Henderson, Timothy
Hills, Leonard M.
Hills, Leonard M. Mrs.
Hills, Liberty
Hills, Liberty Mrs.
Hills, Samuel
Hills, Samuel T.
Hills, Samuel T. Mrs.
Hitchcock, Edward
Hitchcock, Edward Mrs.
Hobart, Edmund
Hobart, Edmund Mrs.
Hobart, George W.
Hobart, G. W. Mrs.
Hobart, Jeremiah W.
Hobart, Joshua
Hobart, Stillman
Hobart, Stillman Mrs.
Howard, H. C. & M. W.
Howard, M. W. Mrs.
Howe, Albin P.
Howe, Albin P. Mrs.
Howland, Warren S.
Howland, W. S. Mrs.
Hubbard, Ethan D.
Hubbard, E. D. Mrs.
Hubbard, Rodolphus B.
Ingram, Ezra
Ingram, Harrison
Ingram, Harrison Mrs.
Ingram, Rufus
Ingram, Zaccheus C.
Ingram, Z. C. Mrs.
Jackson, Henry
Johnson, Earl
Johnson, Earl Mrs.
Johnson, Orrin
*Jones, Thomas
Jones, Thomas Mrs.
Kellogg, Henry C.
Kellogg, Eleazer
Kellogg, Horace
Kellogg, Horace Jr.
Kellogg, James
Kellogg, Lyman
Kellogg, Lyman Mrs.
Kellogg, S. Wells
Kellogg, Willard M.
Kellogg, W. M. Mrs.
*Kellogg, William
Kellogg, William Mrs.
Kellogg, William
*Kingman, Cyrus
Leland, John
Leland, John Mrs.
Lincoln, R. S.
Lincoln, R. S. Mrs.
Loomis, Austin
Loomis, Austin D.
Loomis, Milton
Lyman, John
*Mack, David
Mack, David Mrs.
Marshall, Ansel C.
Marshall, Joseph E.
Mather, William E.
Mather, William E. Mrs.
McMaster, Charles
McMaster, Charles Mrs.
Merrick, James E.
Merrick, James E. Mrs.
Merrick, James L. Rev.
Merrick, James L. Mrs.
*Merrick, William
Merrill, Harriet O. Miss
Moore, Phebe Mrs.
Munsell, Guy C.
Munsell, Guy C. Mrs.
Nash, Charles
Nash, Charles Mrs.
Nash, J. A. Rev.
Nash, J. A. Mrs.
Nash, Luther
Needham, Emory H.
Needham, E. H. Mrs.
Nelson, Julia C. Miss
Newton, Walter
Palmer, Frederick A.

Palmer, Frederick A. Mrs.
Pierce, Francis A.
Pierce, Francis A. Mrs.
Pomeroy, David
*Pomeroy, Mary Mrs.
Potwine, Thomas
Prince, Samuel
Rankin, John
Reed, Thomas
Reed, Thomas Mrs.
Rice, Alpheus
Roberts, Fanny H. Mrs.
Robins, Alva
*Robins, Z. W.
Robins, Z. W. Mrs.
Robinson, Ferdin'd Mrs.
Robinson & Ainsworth,
Russell, R. Chauncy
Russell, Emerson
Russell, Emerson Mrs.
Russell, Francis H.
Segraves, Horatio
Shepard, Charles U. Prof.
Slate, Jonathan S.
Smith, B. F. Dr.
Smith, B. F. Mrs.
*Smith, Cotton
Smith, Timothy
Smith, Timothy Mrs.
Smith, William B.
Smith, William W.
Snell, E. S. Prof.
Snell, E. S. Mrs.
Spaulding, Philip D.
Spear, Ebenezer P.
Spear, Lyscom
Spear, Lyscom, Mrs.
Spear, Myrick N.
Stanley, Edward A.
Stratton, Chester Dr.
Stratton, Chester Mrs.
Strickland, William G.
Strickland, Wm. G. Mrs.
Sweetser, Hannah Mrs.
Sweetser, Luke
Sweetser, Luke Mrs.
Taylor, Israel H. Dr.
Taylor, Israel H. Mrs.
Taylor, Stillman
Thayer, Jason
Thayer, Jason Mrs.
Thayer, Jonathan
Thayer, Jonathan Mrs.
Thayer, Reuben
Thayer, Savannah A.
Thayer, S. A. Mrs.
Turner, Rodolphus
Tyler, William S. Prof.
Tyler, William S. Mrs.
Warner, Aaron Prof.
Warner, Aaron Mrs.
Warner, David S.
Warner, George
Watson, Oliver
Watson, Oliver Mrs.
Wetherell, Leander
Wheelock, Dana
Wheelock, Russell T.
*Whipple, David
Whipple, George A.
Whitney, Simon W.
Williams, Ebenezer
Williams, Enos D.
Williams, E. D. Mrs.
Williams, Frederick
Williams, Orin
Williams, Orin Mrs.
Winter, Jonas H.
Woodman, Geo. S. Dr.
Woodman, G. S. Mrs.
Woodworth, C. L. Rev.
*Woodworth, Maria Mrs.
Wright, Sylvanus M.
Wright, S. M. Mrs.

ATHOL.

Putnam, Rufus
Putnam, Rufus Mrs.

BALTIMORE, M. D.

Brown, Smith

BELCHERTOWN.

Alden, Thomas
Arnold, Barnard
Barrett, Leonard
Chandler, George
Chandler, George Mrs.
*Dorman, Roderic
Dunbar, Charles T.
Dwight, Nathaniel Jr.
Gilbert, Wareham C.
Goodale, Asahel
*Hannum, Gamaliel
Hannum, Lyman W.
Holland, Luther
*Lawrence, Myron
*Longley, Joshua
Montague, Ephraim
Packard, Joel
Sabin, Lyman
Sisson, John
Thayer, Hezekiah
Thayer, Rufus
Thayer, William
*Towne, Israel
Wilson, Asa

BOSTON.

Smith, Alvan
Smith, Charles
Smith, Charles Mrs.

CHICAGO, ILL.

Hubbard, Orton
Tapley, George W.

CHICOPEE.

Mossman, Abner G.

CONWAY.

May, Cephas

COVINGTON, KY.

Payson, Joseph R.

DEERFIELD.

Ely, John D.
Fogg, Josiah
Rust, Horatio N.
Stebbins, Evander G.
Stebbins, Moses
Stebbins, Moses Mrs.

EASTHAMPTON.

Colton, A. M. Rev.
Colton, A. M. Mrs.
Sabin, Sherman
Sabin, Sherman Mrs.

ENFIELD.

Aldrich, Nehemiah W.
Fobes, Henry
Woods, Josiah B.

GRANBY.

Aldrich, Christopher C.
Ayres, Rodney
Ayres, Samuel
Barton, James M.
Barton, Phineas D.
Chamberlain, C. M. Dr.
Chapin, Philo
Clark, Augustus
Clark, Charles F.
Clark, Luke M.
Clark, Spencer
Dickinson, Samuel D.
Ferry, Charles S.
Ferry, Lucius
Lyman, George J.
Montague, Giles F.
Montague, Holland
Patrick, William J.
Preston, John H. D.
Richardson, Orsemus
Smith, George N.
Smith, Jared C.
Smith, Nelson
Smith, Samuel Jr.
Smith, William A.
Stebbins, Cyrus
Taylor, Milo A.
Warner, Alonzo
Warner, Park
*Witt, Benjamin

Witt, Horace
Woodford, Wm. H.

GRANBY, CT.

Gaylord, Ebenezer
Gaylord, Eben. Mrs.

GRAND RAPIDS, MICH.

Merrill, Calvin
Merrill, Calvin Mrs.

GREENFIELD.

Lyman, Horace
Smith, Samuel D.

GREENWICH.

Carter, John
Douglass, Stephen
Earle, Luke

HADLEY.

Adams, Benjamin
Adams, Benjamin Mrs.
Adams, Joseph
Adams, Levi
Adams, Levi Mrs.
Baker, Esek
Beaman, Jonas
Bonney, Franklin
Bonney, Oliver E.
Carter, Benjamin T.
Chapin, Edwin
Comins, Simon F.
*Cowles, Asa
Cowles, Daniel
Cowles, Daniel Mrs.
Cowles, David S.
Cowles, David Mrs.
Cowles, Elijah
Cowles, Elijah Mrs.
Cowles, Lewis
*Cowles, Pamela Mrs.
Dickinson, Dexter C.
Dickinson, Elihu S.
Dickinson, George
Dickinson, Samuel Jr.
Dickinson, William P.
Dickinson, Wm. P. Mrs.
Granger, Lorenzo N.
Granger, Lorenzo N. Mrs.
Gray, Amos
Gray, Chester
Green, Dorus
Green, Dorus Mrs.
Green, Henry
Green, Linus
Green, Linus Mrs.
Hayward, E. E.
Hibbard, Albert
Hill, Roderic B.
Hooker, Benjamin
Huntington, Theodore G.
Huntington, T. P.
Huntington, T. P. Mrs.
Ingram, Robert
Kellogg, Martin
Kellogg, Martin Mrs.
Kellogg, Stillman,
Kellogg, Stillman Mrs.
Kentfield, Jeremiah B.
Lamson, Charles E.
Marsh, Timothy S.
Morton, John A.
Morton, John A. Mrs.
Nash, John W.
Nash, Samuel
Nash, Samuel Mrs.
Osborn, John
Pasco, Theodore
Pasco, Theodore Mrs.
Porter, Eleazer
Porter, Edwards J.
*Porter, Louisa Mrs.
Powers, Alfred
Powers, Alfred Mrs.
Powers, Samuel
Powers, Samuel Mrs.
Russell, Horace
Russell, Horace Mrs.
Russell, John
Russell, John Mrs.
Russell, Levi
Russell, Levi Mrs.
*Scott, Rufus
Scott, Rufus Mrs.
Shipman, John
Shipman, William S.
Smith, Charles
Smith, Chester
Smith, Cotton
Smith, Cotton Mrs.
Smith, Edmund
Smith, Erastus
Smith, Giles E.
*Smith, Horace
Smith, Jeriah S.
Smith, Joseph
Smith, Joseph Mrs.
Smith, Oliver E.
Smith, R. Wales
Smith, R. Wales Mrs.
Smith, Thaddeus
Smith, Thaddeus Mrs.
Stockbridge, Levi
Tower, Samuel
Wallis, Addi
Warner, William P.
West, Parsons
West, Parsons Mrs.
White, Samuel G.
Williams, P. Smith
Williams, P. Smith Mrs.
Wilder, Samuel C.

HATFIELD.

Hubbard, George W.

HOLYOKE.

Cooke, Edwin F.

KEENE, N. H.

Sprague, Joseph G.

KNOXVILLE, TENN.

Cooke, George Rev.
Cooke, George Mrs.

LEVERETT.

Adams, Alden
Ashley, Marvin
Ashley, Marvin Mrs.
Ball Orus
Ball Orus Mrs.
Ball, Silas
Bangs, Howard
Boutwell, Levi
Boutwell, Levi Mrs.
Boutwell, Samuel W.
Boutwell, S. W. Mrs.
Clark, William Wells
Cutter, Seneca Mrs.
Dunklee, Hezekiah
Eastman, David Rev.
Eastman, David Mrs.
Field, Alden C.
Field, Alden C. Mrs.
Field, Asa L.
Field, Asa L. Mrs.
Field, Charles H.
Field, Charles H. Mrs.
Field, Harrison
Field, Harrison O.
Field, Harrison O. Mrs.
Field, Moses
Field, Moses Mrs.
Field, Zebina
Fitts, Nathan H.
Frary, Francis
Graves, Elmer
Graves, Walter
Graves, Kellogg
Hobart, Baxter R.
Hobart, Charles D.
Hobart, Peter
Hobart, Spencer
Howard, Baxter
Hubbard, Roswell
Ingram, Elisha
Ingram Elijah
*Jones Albert M.
Kimball, David
Leach, Chester
Matthews, Horace
Moore, Dexter
Nutting, Lucius
Nutting, Ransom

Porter, Cephas
Putnam Timothy
Putnam, Timothy Mrs.
Rice, Josiah
Rice, David Dr.
Smith, William H.
Taylor, William
Whitaker, Augustus G.
Willis, Lawson S.
Wood, Seth
Woodbury, Jason H.

LOCKPORT, N. Y.

Sears, Simon.

MARLBOROUGH, N. H.

Downes, Almeron S.

MINNESOTA.

Farrar, George H. Mrs.
Nutting, Truman
Nutting, Truman Mrs.

MONTAGUE.

Boutwell William H.
Paine, Alonzo
Paine, Orrin Mrs.
Russell, Calvin
Russell, Calvin Mrs.
Smith, Charles H.
Spaulding, Peter Jr.

MONTGOMERY, ALA.

Montague, George

NASHUA, N. H.

Jewett, George B. Rev.

NEW SALEM.

Dean, Richard
Haskins, Nelson
Hunt, Horace

NEW YORK CITY.

Ford, Emily Mrs.
Harrington, Samuel
Harrington, Sam'l Mrs.
Shipman, John Jr.
Smith, H. B. Rev. Prof.

NORTHAMPTON.

Arnold, W. A.
Baker, Osmyn
Clapp, D. M.
Clark, William Jr.
Clark, William
Dickinson, George P.
Fitts, Elijah B.
Hawks, Charles K.
Hinckley, Samuel L.
Hillyer, Winthrop
Kirkland, Harvey
Parsons, Samuel L.
Shepard, Ashur
Shepard, Henry
Smith, S. M.
Strong, Elisha
Strong, William
Thayer, Justin
Trumbull, James R.
Trumbull, J. R. Mrs.
Washburn, Luther I.
Wells, Samuel
West, Joseph I.
Wilson, J. W.
Wright, Ansel

OSKOSH, WIS.

Kellogg, Ansel W.

PELHAM.

Aldrich, Ashael
Ballou, Emory
Ballou, Hiram
Barrows, Isaac
Buffum, Thomas
Cook, Olney
Eaton, Calvin D.
Fales, Abijah
Newell, Lemuel H.
Rankin, Ansel A.
Rankin, Ansel A. Mrs.
Russell, John
Ward, Joseph G.

PITTSFIELD.

Frink, Henry
Frink, Henry Mrs.

PRESCOTT.

Aiken, Benjamin P.
Paige, Benjamin K.
Paige, Chistopher

PROVIDENCE, R. I.

Leonard, Dexter M.

SARATOGA, N. Y.

Crapo, Azubah Mrs.

SHARON, ILL.

Godfrey, William B.

SHUTESBURY.

Adams, N. Dickinson
Adams, S. Ward
Dudley, Samuel F.
Dudley, S. F. Mrs.
Fitts, Edward
Howe, Abraham S.
Shores, David

SOUTHAMPTON.

Edwards, Elisha

SOUTH HADLEY.

Allen, Levi W.
Alvord, Hervey
Bates, Emerson
*Burnett, Nelson W.
Clark, Marcellus
Gaylord, Lorenzo
Kellogg, Amos
Lathrop, Paoli
Lyman, Lorenzo W.
Montague, C. Newton
Moody, Hovey
Nash, Thomas M.
Smith, Edmund
Smith, Edmund Mrs.
Smith, Gilbert A.
Smith, Jason
Snow, Sheldon Mrs.

SPRINGFIELD.

Brewster, John M. Dr.
Montague, Isaac W.

SUNDERLAND.

Brown, Joshua T.
Brown, Sylvester
Brown, Sylvester Mrs.
Clark, Austin L.
Clark, Austin L. Mrs.
Clark, Eliphalet Mrs.
Clark, Norman P.
Clark, Norman P. Mrs.
Clark, Sereno D. Rev.
Clark, Sereno D. Mrs.
Clark, Stillman D. Mrs.
Cooley, Charles
Crocker, Daniel B.
Crocker, Stoughton D.
Crocker, S. D. Mrs.
Darling, Benj. Clark
Darling, B. Clark Mrs.
Delano, Ansel C.
Delano, Ansel C. Mrs.
Dickinson, Ebenezer P.
Dickinson, E. P. Mrs.
Dickinson, Ransom
Dickinson, R. Mrs.
Dunklee, Benjamin F.
Dunlap, Samuel
Dunlap, Samuel Mrs.
Field, Edwin G.
Field, Edwin G. Mrs.
Field, Erastus S.
Gaylord, William
Graves, Alden
Graves, George W.
Graves, Hubbard
Graves, Hubbard, Mrs.
Graves, Marvin Mrs.
Graves, Timothy
Graves, Timothy Mrs.
*Grover, Josiah

Gunn, Isaac S. H.
Hemenway, B. C. Mrs.
Hobart, Albert
Hobart, Albert Mrs.
Hubbard, Alanson
Hubbard, A. Mrs.
Hubbard, Ashley
Hubbard, A. Mrs.
Hubbard, Avery D.
Hubbard, A. D. Mrs.
Hubbard, Caleb T.
Hubbard, Claudius B.
Hubbard, C. B. Mrs.
Hubbard, David
Hubbard, David Mrs.
Hubbard, Kelita
Hubbard, Martin L.
Hubbard, Moses 2d
Hubbard, Moses 2d Mrs.
Hunt, James
Hunt, Melzar
Hunt, William
Hunt, Zebina M.
Ludden, Parmenas
Miller, Washington
Montague, Albert
Montague Albert Mrs.
Montague, Warren
Newton, Lyman A.
Pomeroy, William D.
Prouty, James B.
Robinson, Ephraim E.
Rowe, Alfred E.
Rowe, Alfred E. Mrs.
Russell, Austin
Russell Emmons
Russell, J. Wiley
Russell, J. Wiley Mrs.
Russell, William W.
Russell, Wm. W. Mrs.
Sanderson, Eli
Sanderson, H. F. Mrs.
Smith, Austin
Smith, Austin Mrs.
Smith, Brainard
Smith, Brainard Mrs.
Smith, Elihu
Smith, Elihu Mrs.
Smith, John M.
Smith, John M. Mrs.
Smith, Nathaniel
Smith, Nathaniel Mrs.
Smith, N. Austin
Smith, N. Austin Mrs.
Taft, Francis L.
Trow, Nathaniel G. Dr.
Trow, Nathaniel G. Mrs.
Warner, James R.
Warner, Levi P.
Warner, Levi P. Mrs.
Warner Parsons
Warner, Wallace R.
Whittemore, D.D.& J.Jr.
Wiley, Dolly F. Miss
Wiley, Ebenezer
Wiley, Ebenezer Mrs.
Wiley, John
Wiley, John Mrs.
Williams, Henry O.
Williams, H. O. Mrs.
Williams, Oliver
Wright, Abram

TAUNTON.

Sanford, John Rev.
Sanford, John Mrs.

WARE.

Bowen, Sylvester
Brakenridge, Wm. S.
DeWitt, Francis
Gilbert, George H.
Gilbert, G. H. Mrs.
Goff, B. F.
Phelps, Samuel H.
Rice, Joel
Sage, Orrin
Stevens, Charles A.

WESTBOROUGH.

White, Samuel.N.
White, Samuel N. Mrs.

WEST SPRINGFIELD.

Colton, Joseph

WILLIAMSBURGH.

Bartlett, Newman W.
Graves, Levi M.

WILMINGTON, VT.

Smith, Newman W. Dr.
Smith, N. W. Mrs.

WORCESTER.

Cummings, E. A. Rev.
Cummings, E. A. Mrs.

RECAPITULATION.

Amherst,	386	Greenwich,	3	Pittsfield,	2
Athol,	2	Hadley,	102	Prescott,	3
Baltimore, Md.,	1	Hatfield,	1	Providence, R. I.,	1
Belchertown,	24	Holyoke,	1	Saratoga, N. Y.,	1
Boston,	5	Keene, N. H.,	1	Sharon, Ill.,	1
Cambridge,	1	Knoxville, Tenn.,	1	Shutesbury,	7
Chicago, Ill.,	2	Leverett,	59	Southampton,	1
Chicopee,	1	Lockport, N. Y.,	1	South Hadley,	17
Conway,	1	Marlborough, N. H.,	1	Springfield,	2
Covington, Ky.,	1	Minnesota Territory,	3	Sunderland,	110
Deerfield,	6	Montague,	7	Taunton,	2
Dorchester,	1	Montgomery, Ala.,	1	Ware,	10
Easthampton,	4	Nashua, N. H.,	1	Westborough,	2
Enfield,	3	New Salem,	2	Westfield,	1
Granby,	32	New York City,	5	West Springfield,	1
Granby, Ct.,	2	Northampton,	25	Williamsburgh,	2
Grand Rapids, Mich.,	2	Oskosh, Wis.,	1	Wilmington, Vt.,	2
Greenfield,	3	Pelham,	13	Worcester,	2

Whole number of Members, 874.

TRANSACTIONS

OF THE

HAMPSHIRE AGRICULTURAL SOCIETY,

DURING THE YEAR

1856.

PREPARED BY

JAMES W. BOYDEN,

SECRETARY.

AMHERST:
PRESS OF J. H. BREWSTER.
1856.

ADDRESS,

BY EDWARD HITCHCOCK, D. D. LL., D.

How benevolent a provision it is, in such a world as this, that some men are about as well fitted for one place as another. When other men's plans want piecing out, or get cracked, or have holes in them, these jacks-at-all-trades can be used at once, and made to fit exactly. I claim the honor of being one of these convenient men; and my present position proves it. Imagine the indefatigable Secretary of this Society to meet me a few hours ago, with the announcement that the orator for this occasion had failed, and that nobody else—that is, no one able to give a good address,—could be obtained; and laying his grappling irons on me as a last resort for the occasion. But Mr. Secretary, I reply, though willing to do much to help in such an emergency, I really have but very little written on the subject of agriculture, or the arts, which I have not already delivered in public; not before this body, indeed, nor any where within the last decade of years, but still delivered formerly in this valley, and perhaps before some who may be present this week. Nay, what is worse still, most of what I formerly delivered on such occasions is in print. This statement, I felt sure, would close the Secretary's mouth and leave me free. But no: he actually gave the argument such a turn that my resolution was overcome, and I have submitted to have the harness buckled upon me. He assured me (what a compliment to the power of my eloquence!) that undoubtedly

everybody had forgotten my addresses, and would never suspect, did I not inform them, that what I should deliver had ever been written or published. I presume he spoke the truth; and, therefore, I invite this respected auditory to partake of such a hashed dish as I am able to offer. They will doubtless feel as did one of my parishioners formerly, who suspected me of preaching a sermon the second time, and who likened it to being fed on cold pudding. But I beg you to remember that I have not had time on this occasion, to warm over the pudding.

Without further delay, however, I proceed to my subject, which is *the mutual dependence between agriculture and the other important pursuits and interests of society.**

The mutual dependence between the arts, manufactures, commerce and agriculture, will need but a few words of illustration, because familiar to all. In order to success in any important pursuit, it is necessary that a man should give to it an undivided, constant, and nearly exclusive attention. Neither the farmer, mechanic, nor merchant, can be thriving and successful, if he do not rise up early and sit up late, and make his business a leading object of pursuit. He cannot successfully combine two or more of these branches of labor, unless it be as mere over-sight. What, then, could the merchant, mechanic or manufacturer do, without the products of the soil? and how could he obtain them, were there not a class of men exclusively devoted to their growth? Let the farmer then cease his labors, and it would almost sweep commerce from the ocean, shut up almost every merchant's shop, and starve out most of our mechanics and manufacturers.

On the other hand, let not the farmer imagine, because he is the principal producer, that he is independent of commerce, arts, and manufactures. His existence might, indeed, be con-

*Notwithstanding the statements in this introduction, the Society requested that the address might be printed in their annual Bulletin. The author, although differing from the Society as to the expediency of this course, has marked what he regards as its most important parts, which he submits to their wishes.

tinued without them ; but it would be only existence as a savage; and of course only a small fraction of the present population of a country could in this way even exist. Besides, they would owe their sustenance, not to agriculture, but rather to the bounty of Providence, which has caused the earth, in almost every land, to bring forth spontaneously the fruits essential for the food of a scattered population. But agriculture, properly so called, cannot exist without commerce and manufactures. The very first step in farming, I mean the breaking up of the soil for the seed, requires the artizan's skill in the construction of tools. Without that skill, indeed, the farmer's present comfortable, and it may be elegant habitation, must be exchanged for the skin lodge of the Pawnee, the bark hut of the New Hollander, or, at the most, the wigwam of the aborigines of New England. His dress, too, if dress he could obtain, must be the undressed hide of some animal ; and his wife and daughter must exchange their silks, muslins, and calicoes, for the filthy skin of the horse, the racoon, the bear, or the buffalo ; festooned it may be, as the *ne plus ultra* of savage skill, with the quills of the porcupine, the feathers of the eagle, or bark painted with elderberries. In his habitation, too, the nicely sanded or carpeted floor must give place to the lap of mother earth, where vermin, lizards and serpents, would dispute with him the right of possession. An unglazed hole in the wall must let in the storm and the wind, as well as the light ; the stagnant pool must be the mirror before which he must make his toilet ; and his glass, pottery and porcelain, must give place to a wooden trencher or bowl, wrought out by a flint. Let the farmer be thus stripped, for a few months, of all the necessaries, comforts and luxuries which come to him through the arts, manufactures and commerce,—let him, like Nebuchadnezzar, be compelled " to eat grass as oxen, until his hairs are grown like eagle's feathers, and his nails like bird's claws,"—and he would cease to say of his present state of comfort and happiness, " is not this great Babylon, which I have built, by the might of my power, and for the honor of my

majesty." He would be ready to acknowledge his dependence, if not on God, yet on commerce and the arts.

But why should I dwell on this subject; for every agricultural fair presents us with a practical illustration of the intimate connection and dependence between agriculture and the arts. The choicest and richest displays of mechanical skill meet and gratify us there; and many of them, too, have been prepared in the farmers' families, in the intervals of leisure; so that, in fact, to attempt to depreciate manufacturers would be to depreciate farmers themselves.

The important connection between agriculture and national prosperity is a subject almost too trite for an occasion like the present. And yet few think of all the relations between these subjects. The products of the soil, which result from its cultivation, are generally thought of, as the only contribution which agriculture makes to a nation's prosperity. This is, indeed, a main pillar of that prosperity. But, after all, the most important element of national character is the character of the citizens.

Just such men as agriculture produces are needed to fill up the ranks of other pursuits in society. For though these other pursuits are of the utmost importance, nay, indispensable to the prosperity of society, and therefore those who engage in them are in a most honorable and respectable path, they are not adapted, like agriculture, to give that physical energy and happy development of character to the rising generation, which they need to take the place of their fathers. Indeed, all the sedentary pursuits in which men engage, tend rather to the deterioration of the human constitution, so that the sons of mechanics, merchants, and professional men, can only in part fill up the vacancies occasioned by death. Nay, an enfeebled constitution often compels them to resort to agriculture to restore its lost stamina. Hence there is needed a foreign supply, to keep the ranks full and strong in these professions. And, where agriculture is in a proper state, it furnishes such a supply. The discipline which the young are undergoing on every well conducted farm in the land, is fitting them to become fu-

ture artizans, merchants, and professional men. Especially are they preparing there to supply the enormous demand which the cities and larger towns are making upon the country. The fact is, that the strong mental excitement, the heavy pressure upon time, the unseasonable hours, the luxurious habits, and the want of fresh air and exercise, in city life, ere long break down the strongest constitution; and in a large proportion of cases the children of robust parents are feeble, and, though precocious, are destitute of the bodily hardihood and mental energy essential to eminent success in any pursuit. Hence such children must usually give place to youth from the country, whose decendants in time must yield to others from the same prolific source. Hence, as I have wandered over the hills and valleys of our land, and have met by the wayside, and on the farm, or in the meanest hovel, with children uncultivated, and even repulsive in their appearance, yet healthy and hardy, I have often felt for them no small degree of respect, when I recollected that probably, under that rough exterior, there lay concealed the future wealthy merchant, or eminent artizan, or distinguished scholar. The refined city beau, or belle, may indeed smile contemptuously at the uncouth manners of the plough boy, who, on his first trip to the city, is staring about the streets with half opened mouth; but not unlikely that despised rustic will one day rise far above them in wealth, learning, and respectability. At any rate, such transmutations are of every day occurrence in the city.

The cause of education is regarded by all intelligent men, especially in a country like our own, as an important national tional interest; and hence we should inquire what influence is exerted upon it by agricultural pursuits. An eminently salutary influence, is the decided reply. Especially is this the case in respect to popular education, as appears from several considerations. These pursuits, in the first place, afford more of leisure for study than most others, since the hours of active toil must be so much fewer than those of the waking period of the day. The farmer, also, is ever in intimate communion with nature; and thus an inquisitive and discriminating spirit is ex-

cited. The farmer of experience likewise soon learns how much he may be aided by a good education in his calling; and thus is he prompted to secure such an education for his children. But above all, his active habits give him so much physical vigor, that the old adage may be applied to him; *mens sana in corpore sano;* a sound mind in a sound body. He can sit down calmly to his books with little of that nervous irritability and restlessness, and little of that cloudiness and debility of intellect, that torment and retard so many of sedentary habits. Those only can appreciate the value of such a state of body and mind, who have had to struggle with its opposite. If I may be allowed to give my own experience on this subject, I would say, that decidedly the best time for study which I have ever known,—when the mind was the the clearest and the nerves most quiet,—was the evening that succeeded a hard day's work in hoeing or mowing. After having mowed an acre of grass, I found my mind prepared to mow an acre of Geometry or Astronomy; and often in subsequent days, when study was a task, and there seemed to be a muffle over the mind, I have sighed for the return of that period, when the intellect had as keen an edge by night, as the scythe had by day.

Of the reflex influence of education upon agriculture I might say much. It is this indeed, almost exclusively, that distinguishes the farmer of New England from the serf of Russia; the one, about as low in the scale of humanity as is possible; a servile animal, with scarcely more of intellect than the ox or the horse; the other, an intelligent freeman, with sagacity to know what his rights are, and with the determination to maintain them; far more independent than the European lord, who, with all his wealth and his castles, is a slave to his menials. The American farmer has enough property to supply all his reasonable wants, but not so much as to make him miserable. He knows how to take care of himself, and is not compelled, therefore, as most of the wealthy are, to commit his happiness into the hands of mercenary hirelings, or unpaid slaves. And it is his education merely, that gives him such a proud pre-eminence over so vast a majority of his fellow men.

This alone teaches him what are his peculiar advantages, and how best to improve them.

I have spoken thus far of education in its more general acceptation; as meaning the discipline of all the powers of man. But between science and agriculture, there is a still more specifically intimate relation; and on this point, as more particularly appropriate to the present occasion, and falling in with my past course of study, I hope I may be allowed to dwell with more attention, than upon the other relations of agriculture.

There are three sciences in particular, from which it has been supposed agriculture might derive important benefit, viz: Botany, Geology, and Chemistry.

Is is obvious now, that these branches open before the scientific man a wide and most interesting field. And within a few years past, most diligently has it been explored. Some of the ablest chemists, geologists, and botanists of Europe and America, have been most actively and successfully employed in these researches.

As a consequence, the science of agriculture has advanced most rapidly. Even a review of its progress is more than I can attempt on this occasion. But I ask your patience while I briefly notice the most important points that have been gained, and the present aspect and prospects of agricultural science.

Whoever examines the internal structure of plants, even cursorily, will be struck with its analogy to that of animals. He will find in both, organs for the reception of food, for its digestion and assimilation, as well as a system of circulation and reproduction. The plant, indeed, has its peculiarities of organization, as for instance, that no nervous system has been discovered in it; and yet it seems possessed of irritability, if not sensibility. Under the microscope, however, it is a wonderful structure; and notwithstanding all the difficulties of the investigation, the patience of physiological botanists has disclosed an organization in plants almost as wonderful as that of animals.

To the chemist it has long been manifest, that the true way

to ascertain what food is needed by plants, is to analyze their whole substance, to see what ingredients they contain. For the notion prevalent not long since, that vegetables have the power to transmute one simple substance into another, is utterly exploded; and no scientific man now expects to find in plants any ingredient that does not exist in the soil or the atmosphere. The uniform result of careful and repeated analysis of plants is, that they are mainly and essentially composed of four principles, viz: carbon, oxygen, hydrogen, and nitrogen. These are combined together in various ways, and form the almost entire mass of vegetables. But when plants are burnt, they leave a solid residuum, or ash, which often contains eight or nine other simple substances: viz.: chlorine, iodine, sulphur, phosphorus, potassium, sodium, calcium, magnesium, aluminum, silicon iron, and manganese. These are the inorganic ingredients; and though essential to the composition of plants, they do not always exist in the same proportions, even in the same plant, as do the organic ingredients, that is, carbon, oxygen, hydrogen, and nitrogen. Neither are any of these ingredients, organic or inorganic, found in a simple state, but are united in various ways.

The next grand inquiry is, Whence do plants derive their twelve or thirteen ingredients? If we can answer this question satisfactorily, we have gained an important step in ascertaining how the farmer can supply food to those plants which he cultivates. As a general answer to the question, we may say, that the soil and the atmosphere are the only sources whence the vegetable world can derive its nourishment. And analysis shows that ordinarily all that is essential to its healthy development is found there. Indeed, nearly or quite all of these ingredients are usually found in the soil; and the common impression is, that the greater part of the substance of plants is derived from the soil, by means of the sap absorbed by the roots, because it is necessary to add manure yearly to render soils productive. But the opinion is now general among chemists, and seems sustained by facts, that a large proportion,—say about two thirds,—of the carbon contained

in plants, is absorbed directly from the atmosphere by their leaves. And yet only 1-2500th part of the atmosphere is carbonic acid, which is diffused through the whole air, and less than one third of this gas is carbon. How then can a tree or forest, for instance, obtain enough of this gas to form so large a part of its substance? since the quantity immediately around it, and even the fresh portions brought by the wind, must soon be exhausted. But here a very wonderful law of nature completely provides for the difficulty. If several sorts of gas or air be brought together, even though some be much heavier than others, they will soon become equally mixed throughout; and if any one of them be removed from a particular spot, what remains of the same gas in other portions of the mixture will instantly expand, till it has filled the whole space, just as it would do if that were the only gas present. So that, if all the carbonic acid around a particular plant be absorbed, the gas will rush in from other parts of the atmosphere, and thus keep a constant supply within reach. In this way a tree can go on without interruption, except by winter, accumulating carbon for years, and even centuries. A single pine tree in Oregon, for instance, is sometimes found to contain 256,000 pounds of carbon; which required 1,305,333 pounds of carbonic acid; two thirds of which is 870,222 pounds, all taken from the atmosphere; or 800 pounds yearly; on the supposition that the tree required 1100 years for its growth. This single example will give some idea of the magnitude of the process that is going on, silently, yet surely, to supply all the forests on the globe.

So much for the carbon which forms the principal part of the solid portion of the plant. Whence does it obtain its oxygen and hydrogen? Nearly all of it, no doubt, from the water pumped up by the roots, or absorbed by the leaves; for water is entirely composed of these two elements. Nitrogen, also, the least abundant ingredient, might, it would seem, be derived directly from the air by absorption, since four fifths of the atmosphere consists sf it; but there is no evidence of any such absorption. Yet a small quantity of it is absorbed by the water taken up by the roots. Ammonig also, a compound of

nitrogen and hydrogen, sometimes exists in small quantity in the air, and is produced still more abundantly by fermenting manures. Nitric acid likewise is sometimes found in minute quantity in the atmosphere, and its absortion would furnish nitrogen as well as oxygen.

As to the inorganic matter of plants, the sulphur, phosphorus, lime, silex, iron, manganese, &c., it must nearly all be derived from the soil, since water alone can hold it in solution. Chlorine perhaps may, as Dr. Dana suggests, be derived from the atmosphere in the condition of common salt, which he has shown to exist probably in the air.

Such are the ordinary sources whence the food of the vegetable world is derived. But there is one principle of vegetable physiology of great importance and deep philosophical interest, that should be noticed, since its neglect has been a fruitful source of controversy among scientific men. It cannot be doubted that plants like animals have the power of adapting themselves to circumstances; so that, if they cannot obtain nourishment from one source, they are able to derive it from another. It is well known that some plants will flourish in pure water, others suspended in the air; and on some marly soils, destitute of vegetable matter, abundant crops may be raised without manure through an indefinite number of years; though in all these cases, probably, plants are less robust and prolific than if supplied with food both from the soil and the air. But their ability to draw a less perfect subsistence from different sources is another interesting evidence of Divine foresight and benevolence.

Chemists have not been satisfied with ascertaining the nature and origin of the nutriment of vegetable nature. They have attempted to follow the crude materials through their various and most delicate metamorphoses, till they become converted into the different remarkable compounds which plants produce. And, though much of the chemistry of these changes is concealed, yet we can see what are the most important agents concerned; and heat, light, and electricity, stand at the head of the list. It can hardly be doubted that the rootlets of

plants have the power, by a galvanic agency, of eliminating from the soil many important principles, not otherwise separable; nor is it more doubtful, that the various products of plants are the result of a similar galvanic agency exerted by their organs. The necessity of heat for effecting these various changes has always been known; but it is not till recently that the necessity of light, and its mode of action, were understood. The sap, it appears, undergoes but little change till it reaches the leaves. There it experiences digestion, by the action of solar light upon the green matter, called *chloropylle*. The green matter itself is first produced, and then it forms an apparatus by which the compounds in the sap are decomposed, the oxygen gas is liberated, and mineral or inorganic matter becomes organized, that is, converted into the various parts of the plant. The chemist cannot, indeed, look into all the crucibles, and flasks which nature employs in this curious laboratory, nor examine all the re-agents, be cause they are too minute; but he can see enough to show that the whole is a chemical process, modified somewhat by the vital principle.

He can see enough to make him strongly desire to see more; enough to make him feel how infinitely superior is nature's chemistry to his own.

The analysis of the various parts and products of plants has disclosed some most curious facts as to their great similarity, and their relation to the principles found in animals. It has been ascertained that animals need two sorts of food; one kind containing nitrogen, and another sort destitute of it. Those principles containing nitrogen are necessary for their nourishment, such as *albumen*, *fibrine*, *hæmatin* and *caseine*, which are the same essentially in composition. Those principles destitute of nitrogen are necessary to sustain the process of breathing, and thus to furnish fuel for keeping up the animal heat. These are fat, starch, sugar, gum, &c, Now these principles, both for giving nutrition and keeping up the animal heat often exist ready formed in vegetables, and, when vegetables are taken for food, the animal merely appropriates the principles. Thus fat exists in the oily and waxy parts of

vegetables ; starch and sugar occur abundantly in many plants ; and the fibrine, albumen and caseine, are derived from the gluten of flour, the leguminous principle of beans, &c. It needs nothing, also, but water and the oxygen of the air, to convert these various principles into one another ; and sometimes this can be done even by man. Thus, starch is easily changed into sugar, and very palatable bread has been made out of wood, which, in fact, is chiefly fibrine, and contains all that is essential for nourishment. Who knows how soon it may happen, that a few cords of wood shall furnish the poor man not only with fuel, but with bread ?

These theories of nutrition and animal heat cannot be regarded as completely established. But they are so much more ingenious and satisfactory than any which have preceded them, as to give them strong claims upon our attention.

Geology teaches us that soils are nothing but rocks crushed into powder, and mixed up with vegetable or animal matter. Hence we might expect that they would differ in composition as the rocks differ : and so they do ; though such has been the nature of the agency by which the rocks were crumbled down, that the materials from several rocks are frequently mingled together. But in fact, rocks do not differ very materially in composition. Some, such as trap rock and limestone, contain more lime and magnesia than others. But there is scarcely any rock of much extent, that does not contain all the earthly ingredients essential to plants ; and, therefore, so far as their composition is concerned, it is comparatively unimportant from what rock a soil is derived. We shall be almost sure to find in it a large amount of silex, more or less of alumina, lime, and magnesia, with gypsum and phosphate of lime.

But the great differences in the fertility of soils depend more upon the amount and condition of the organic matter which they contain, and upon their power of absorbing and retaining heat and moisture, and upon their degree of fineness or coarseness, than upon their mineral constitution. Every farmer knows that a soil may be too coarse or too fine for good crops, and that it may be too cold ; and also that it may abound in

organic matter,—that is, such as results from decayed animals and vegetables,—and yet be very barren. And when ashes, or quick lime, or marl, or gypsum, or bone powder, is added, they render the soil fertile, not because the soil is entirely destitute of these materials, but because they bring the vegetable matter into such a state that it can be taken up by the roots of plants; or they make it mellow, or more tenacious of heat or moisture.

If these views are correct, some important consequences follow.

One is that there is scarcely any soil too barren to be made very fertile; and that what the farmers of New England should aim at, is, not to transplant their sons to the fertile prairies of the west, but to improve our own soil; so that they shall be contented with the paternal inheritance. To illustrate this position, let me give an example from my own experience. Every one knows that there is not a more barren spot in New England, than the further extremity of Cape Cod; where the traveller sees little else but white drifting sand, and scarcely no vegetation, except a few stinted pines, and beach, and poverty grass. Finding myself in Truro, and, as I fancied, almost beyond the regions of agriculture, I was surprised, on being invited by a respectable farmer there to visit a piece of ground, on which he was in the habit of raising annually fifty bushels of Indian corn to the acre. I found that the soil did not differ from the white sand around it, except in containing an abundance of fragments of quahaug shells, and enough of organic matter to give it a dark color. Having extracted these shells, that is, all the carbonate of lime, (about 20 per cent.,) and a little phosphate, and then burnt off the organic matter, nothing remained but the pure white sand of the Cape.

Now this is an extreme case; and if such a soil can be made fertile, I know of none in New England that cannot be made so. True, it requires industry, ingenuity, and perseverance. But this is just what men need for the development of a good character, and for happiness. Providence never conferred a greater blessing upon this nation, than by directing our Pilgrim

Fathers to the comparatively barren shores of New England. Had they found an easy and naturally fertile soil here, New England character, in which we so much glory, would never have been developed. It needed a soil, capable, by cultivation, of yielding a good return, but not affording even subsistence without untiring industry and skill. We ought, therefore, to be thankful for the comparative barrenness of our soil, and, instead of envying others their naturally richer fields, we ought to be stimulated to make ours as rich as possible by cultivation; and then, we shall have, what is very seldom acquired in regions that yield almost a spontaneous growth, and what is worth infinitely more than natural fertility; I mean industrious and sober habits; well informed minds; energy of character; and a good conscience. And this, with me, is one of the strongest arguments for doing all we can, to sustain agricultural societies; since they are accomplishing this work in a most energetic and efficient manner.

Perhaps science has not thrown more light upon any part of agriculture, than upon that of the nature and operation of manures. It is but a few years since there was a darkness that might be felt upon this subject. But now, we know the composition and specific action of most substances called manures. They may be divided into two classes; the first, embracing the various salts useful upon land; and the other, consisting of vegetable or animal matter mixed with salts. The salts are such as common salt nitre, phosphate of lime, or bone ashes, limestone, marl, nitrate of lime, potash, soda, &c. &c, These, in their pure state, do not afford much nutriment to plants; but they act upon the nutriment, and prepare it for the organs of the plant, by rendering it soluble and decomposing it. The common manures, or a large part of them, are converted, when mixed with the soil, into what is called geine, or humus. But this is not in a proper state to be taken up by the roots, until acted upon by other substances, when it becomes soluble, or produces carbonic acid. Common manures usually contain more or less of the salts; but, being most of them soluble, they are carried away by rains; and hence the value of new sup-

plies. Nor does it usually require but a small quantity, as the example of ashes, and gypsum, and phosphate of lime evinced. The latter, in the state of bone dust, where the phosphate is mixed with carbonate of lime and cartilage, is a manure so concentrated, that one ton of it is equal to 14 tons of farm yard manure ; and almost equally concentrated is guano, and some other compounds now used upon land. But I cannot go into details.

Allow me also to repeat a suggestion made in my report on the Agricultural Geology of Massachusetts, respecting the use of what I call *Muck Sand*, dug from a considerable depth in the earth. It is well known to the chemist, that most of the salts so useful upon land, are dissolved by rains, and carried downward through the soil, till they meet with a water-bearing stratum. There they will accumulate ; and now, let that stratum,—known by springs issuing from it,—be dug up and spread over the surface, and these salts will exert their appropriate influence upon the crops. This very principle is the chief secret of the good effects of subsoil ploughing ; and I doubt not but it will yet lead to valuable results in the use of substances drawn from a still greater depth. In some instances, they certainly have produced astonishing effects.

Though I have doubtless wearied your patience, ladies and gentlemen of the Society, by these details, I would gladly add more. But I trust I have said enough to show how important a bearing science has upon practical agriculture. The day I trust has gone by, certainly among the enlightened farmers of this great valley, when men reject and treat contemptuously what has been called *book farming ;* by which I understand farming on scientific principles. Such farming has done too much, both in Europe and this country, to be any longer despised, or even looked upon with scepticism. The many agricultural societies, on both sides of the Atlantic, so prolific of good, are based upon science ; and would be almost useless without it : and the numerous journals of agriculture, now published, derive their chief and most valuable matter from the application of science to cultivation. Indeed, it is scientific

agriculture that enables twenty millions of people to subsist in Great Britain on the same soil, which in 1780 sustained only nine millions. The Highland Agricultural Society, in Scotland, especially, has done wonders, when we consider that no country is more bleak and barren in Europe; yet it now has reached a very high state of agricultural prosperity, and chiefly through the influence of that Society, now seventy-six years old. The average produce of wheat in the whole of Great Britain was formerly but nine bushels to the acre; but it is now more than 19 bushels; and in several counties of England and Scotland, the average is not less than 50 bushels.

"On the continent," says a traveller, "especially in Germany, their annual fairs bring together the farmers and peasants of all the surrounding country, when their ambition and industry are stimulated by a variety of fetes and the distribution of prizes to successful competitors, and whilst princes, dukes, and barons are engaged in awarding prizes to those who have been most successful in the cultivation of grains and cattle, their lovely wives are occupied in a humble but much more lovely scene, in complimenting and distributing premiums to the industrious housewife, for her fine specimens of fruit, her butter and cheese, her linen clothes, weaving, knitting, and other manufactures. I have no doubt I shall be ridiculed for my want of taste, when I state, that to me the Grand Duchess of Baden, presenting a silver cup to a peasant girl, before an assembled crowd of farmers and nobility, for the finest specimen of manufactured gloves, was a more interesting sight than that of the gay queen Victoria, racing through St. James' Park, with fifty fools at her heels, striving not to be distanced by their lovely mistress."—(*Southern Cabinet for Jan.*, 1840, p. 4.)

In this country, we are beginning to realize similar fruits from enlightened agriculture, under the fostering care of Agricultural Societies. Many a noble farm in New England, with its produce doubled or trebled within a few years, testifies to their influence. Our farmers have been fearful that they could not compete with the products of the West and

South, poured in upon them through the great iron sluice-ways that steam has forced open. But let them unite yankee industry and perseverance to scientific agriculture, and I will put them against the world. The more rail-roads we have the better; for they will only bring the market nearer. Instead of discouraging the farmer, they should stimulate him to seize upon and apply all the principles of science and experience to improve the cultivation of the soil. Why, for instance, should not the almost entire surface of New England exhibit as high a state of cultivation as we now witness around most of our villages? The soil is capable of it; nay, of much higher cultivation,—capable of sustaining four times its present population; and thus, if our morals and religion be preserved, of giving us four times more influence upon the world. I trust that the next generation will see this statement verified; and that, too, as the fruit of two things of which some are very much afraid, viz: rail-roads and book farming.

Protracted as my remarks have been, I cannot feel justified in closing without adverting to the relations of agriculture to certain objects of far higher importance than any yet mentioned. I refer to the mutual bearings between agriculture and personal and domestic happiness, morality and religion.

The influence of moral and agricultural pursuits upon personal and domestic happiness, has, from the earliest civilized times, been a fruitful theme for the poet's numbers and the philosopher's lucubrations. In the morning of life, indeed, while yet time and experience have not stripped the world of its rainbow hues, men fancy that happiness dwells in more public and exciting pursuits. One seeks it on the battle field and in the wreaths that crown the warrior's brow. But he finds at last that a sea of blood is not a sea of happiness. Another aspires after distinction in political life; nor does he learn, without much bitter experience, how far away from the abode of happiness, the surges and storms of public life are driving him. Another labors with untiring perseverance to stand high in the learned professions, and discovers not till the desired elevation has been reached, how far it rises, not merely

above the follies, but the enjoyments of life. Another finds that the luxury and leisure of great wealth and fashion, when time has disrobed them of their novelty, and cooled the passions, bring little with them but a tasteless and wearisome round of heartless pursuits; while the stream of happiness, which he was just ready to quaff, is dried up, leaving only the empty channel, like the streams of the desert, to mock desire. In short, men of all professions, especially the most elevated, as the evening of life approaches, turn their thoughts with strong desire to the quiet and healthful scenes of agricultural life; and find in its peaceful labors that modicum of enjoyment, which they have sought in vain in other pursuits. There have many of earth's greatest and best, found new chords of pleasure to awake and vibrate, after all artificial pleasures had become insipid and disgusting. There have they found how much truth and beauty there is in the poet's well known eulogium upon the farmer's lot.

> "Ah happy swain! ah race beloved of heaven!
> If known thy bliss, how great the blessing given!
> True peace is thine; and life that knows no change,
> And various wealth through nature's boundless range.
> Content and patience youth's long toil assuage,
> Repose and reverence tend declining age;
> There gods yet dwell, and, as she fled mankind,
> There Justice left her last lone trace behind."

The connection between agricultural pursuits and correct moral habits, is most striking and important. The untiring industry and occupation demanded by these pursuits, were enough to take away half the temptations to vice, by which men are overcome; for it is a truth none the less valuable because it occurs in a nursery song,—

> "That Satan finds some business still
> For idle hands to do."

Then the proper development of the physical system, which is the result of systematic labor in the open air, and of plain food, prevents that precocious manifestation of the appetites and passions, and their unnatural excitement, which are the curse of sedentary life, and break down so early so many con-

stitutions, and plunge in infamy so many bright intellects. Besides, the farmer, in a great measure, escapes the contaminations that spread, as if contagious, among a crowded population. In comparative retirement, fully occupied with healthy and innocent, or rather, useful occupations, and out of the way of unhealthy excitements, he can pursue an even course of life which a philosopher might envy, and which is most favorable to all the manly virtues.

No less decidedly can we speak of the reflex influence of sound morality upon agriculture. Indeed, most of the moral virtues are indespensable to the success of the farmer. Let him, for instance, become indolent, a tavern haunter, a bar-room politician, a news monger, a speculator, and especially an intemperate man, and the effect upon his farm will be as fatal as if burnt over every three months. On the other hand, inquire of our merchants and artisans what has been the effect of the modern reformation in temperance upon the farmers of our land, and they will tell you that the result has been wonderful in multiplying among them the comforts and luxuries of life. Their enlarged and improved barns, their more tasteful and elegant houses, their carpeted rooms, their elegant mirrors and sofas, and stoves, their enlarged libraries, and many other luxuries and elegancies, found now in three times as many families as twenty years ago, testify to the mighty influence of the cardinal virtue of temperance upon our agricultural population; though, in fact, the influence has been no less decided upon all other classes; except, perhaps, some of the wealthy and fashionable, who still cling to the *wine cup:* but whose wealth, unless they do speedily dash that cup from their lips, will assuredly pass from them to the hands of those, into whose path cold water is washing golden sands.

But the crowning excellence of all pursuits and all classes remains to be noticed. I mean pure and undefiled religion. And really, if agriculture is favorable to its reception and development, this is the greatest recommendation of that pursuit. Now what religion reasonably asks, is, that its claims should be examined by a mind in a healthy state, free from prejudice,

not perverted by a wicked life, capable of forming a proper estimate of this world in relation to the next, and of correctly balancing the evidence for and against Christianity. And we have shown that the tendency of agricultural pursuits is to produce such a state of mind and of heart. Accordingly, among no class of men do the advocates of true religion find a more ready reception of its principles, and a better exemplification of its spirit, than among the cultivators of the soil. When they yield their hearts to its influence, it is a deliberate consecration; not the result of animal excitement, or partial views; and therefore, likely to be thorough and enduring as life. In short, the influence of these pursuits is seen in the religion of their cultivators, as well as in every thing else.

But, though agriculture may thus in some degree subserve the cause of religion, far greater is the benefit conferred by religion upon every agriculturist who adopts and practises it. To him, and his family, it is literally true, that in a pecuniary respect, godliness is great gain. There is no motive to industry and economy that will compare in power with a religious one. If love to God and love to man reign in the farmer's heart, and to do good to others be the grand object for which he lives and acts, how cheerfully, how judiciously, how perseveringly will he labor! He who labors merely to gratify his inferior appetites, or his selfish passions, or a sordid love of gain, will be very likely to grasp so much, and be so little scrupulous as to the means he employs, as to lose the whole; or, at least to be subject to continual vexation and collision with others. Take away religion from the farm house, and you have robbed it of its brightest jewel. What spectacle can be more beautiful and impressive, than to see the well ordered and affectionate family of the farmer, bowing in unison at the still hour of the rising sun, around the domestic altar, and to hear the hymn of praise from sweet voices, stealing softly through the morning air, followed by the tones of prayer from the priest of the family? What a preparation for the labors of the day! And how happily, when its toils are ended, will they repeat over this delightful service! With what unison

of purpose and feeling will such a family labor; and how cheerfully and liberally will they impart of the fruits of their toils to every good cause! So, too, when trials and afflictions come, what a talismanic power is there in the religion of that family, to blunt their keenness, and to infuse sweetness into the bitter cup of sorrow! And let not the farmer, in the pride of a stern independence, fancy that the time will never come, when he shall need the power of piety to buoy up his sinking spirit. For the hour is at hand, when, at the withering touch of disease, his strong nerves shall tremble like the aspen, and his quailing spirit can find no resting place, but in a genuine, humble, spititual piety. If, then, religion be so important as a balance wheel and regulator in his secular affairs, and the only rock on which he can stand amid the billows of disease and misfortune, he does not show the shrewdness and wisdom of a New England farmer, who fails to secure the precious boon.

The subject teaches us that all other professions in society should lend their efforts to give increased prosperity to agriculture. The principle of mutual dependence, which I have illustrated at this time, will not indeed allow that agriculture should be exclusively fostered. But there is less danger of aiding this branch of human industry too much than any other; first, because this is confessedly the most important of all, and secondly, because improvement in husbandry will increase our population by increasing their means of support, and thus open new fields for the expansion of other arts and professions. It is certain, that he who contributes even a mite to improve the cultivation of the soil, is aiding to swell the tide of human happiness; for we have seen that these pursuits are decidedly favorable to personal and domestic happiness, as well as to morality and religion.

Let this Society persevere in pursuit of the noble object they have in view. Do any ask what that object is? It cannot be any thing less, it ought not to be any thing less, than to double the produce of this region before the close of this century, and, of course, to double its population, while the standard of education, morality, and religion, shall be raised,

instead of being lowered. Is this subject Uptopian? No; it can be accomplished. It has been done, to a great extent, in some European countries in a shorter time; especially in Scotland, whose soil and climate are far less favorable to agriculture than our own. True, we have in this valley not a little of that kind of soil, which I have represented as one of the greatest blessings Providence ever conferred upon New England; I mean a poor soil. But I am more afraid that we have so much good land here, that the spirit of industry and perseverance, characteristic of those whose veins are filled with Saxon blood, will not be sufficiently roused. What a voice is there in these rail-roads, which have approximated us so closely to the seaboard and the largest markets of the land! What a voice in that Western and Southern produce, which passes directly through your territory to supply these markets! Science, too, is going before you to prepare the way and to cheer you onward. Hear you not, also, the voice of your country, and especially, of New England, whose prosperity is ever so dear to her sons? Think what it is to double the population, and the intellectual and moral power, of a large portion of New England. You know what her influence has been during the past, and you can judge how much good those will accomplish, who shall double that influence in the future. Learning, morality, and religion, are indeed most deeply concerned in such a consummation as we are contemplating; and therefore should all hearts and hands unite in hastening it on. I know that you will not prove recreant to the high trust committed to you by Providence, and purchased by so many toils and sacrifices of your fathers. I fancy, rather, that some of the young men who hear me, now, before their sun of life shall set, will see realized more than my prophecies to-day; and smile to remember how feeble was my faith, and limited my anticipations. Then, and not till then, when it shall be seen how mighty an agency this Society has exerted to bring about such a consummation, will the labors and sacrifices of those be duly appreciated and honored, who have laid its foundations and carried up its superstructure.

Reports, Statements and Premiums.

FARMS.

ANSEL A. RANKIN'S STATEMENT.

My farm contains 115 acres, of which 75 acres are in mowing, tillage and pasture, and the remainder is unimproved, but not unimprovable. I have entered it for the Hampshire Society's premium of sixty dollars, for the best managed and most improved farm, during five successive years, commencing in the year 1855. My improvements, during the year past, have been made in addition to the ordinary annual culture. I have commenced a process of reclaiming some worn out pasture and swamp lands, have laid twelve rods of new stone wall, and have set out some young fruit trees as a nursery. I have endeavored to save all the animal and vegetable materials for manure, which could be found on the farm itself, and have used no other manure except 400 lbs. of plaster. The assessors' valuation of the farm is $2,100.

Products of the Farm.

20 tons of hay, at $12,	$240 00
50 bushels of oats, at 50 cents,	25 00
15 " " rye, at $1,	15 00
150 " " potatoes, at 25 cts,,	37 50
50 " " corn, at 90 cts.,	45 00
22 " " carrots, at 25 cents,	5 50
14 " " turnips, at 20 cents,	2 80
1 ton of rye straw,	5 00
2 1-2 tons of oats at $6,	15 00
3 tons corn fodder,	12 00
Green corn fodder,	12 00
5 loads of pumpkins,	5 00

Pasturing,	50 00	
Garden vegetables,	10 00	
Apples,	15 00	
3 bushels of white beans,	6 00	
		$505 08

Expenses.

My own and hired labor,	$142 00	
Interest on valuation,	126 00	
Taxes,	29 29	
Seed,	12 33	
		$309 62
Surplus profits,		$195 46

PELHAM, June, 1, 1856.

THEOPHILUS P. HUNTINGTON'S STATEMENT.

My farm in Hadley, near the Connecticut river, contains twenty-six acres under constant culture, twelve acres of light, sandy soil, that have been cropped about one year in four, and eleven acres in wood. Some portions have been reclaimed recently. My attempts to enrich my light, sandy soil proved failures and worse than failures—mere robbery of the more valuable parts of the farm—until 1855. I then applied to three acres a thousand pounds of guano, and harvested a crop of more than a hundred bushels of corn, which was worth more than the land could have been sold for in the spring. I have made experiments in raising broom corn, without the use of manure from the farm, by substituting phosphates. I succeeded, the past year, in getting a fair crop, with only one hundred pounds to the acre, applied in the hill; but twice that quantity might be better. My theory is, that the stalks, which are plowed in, and the phosphate will restore all, that the crop has taken from the land. If our valley farmers can raise broom corn with phosphate, and good crops of indian corn and other grains on light, sandy soils with guano, their grass lands can have the benefit of all their home made manures.

For a more particular description of my farm, I refer to my statement published in *Secretary Flint's Agriculture of Massachusetts*, for 1854, pp. 40—45, and in the Transactions of the Hampshire Society for the same year.

FARM ACCOUNTS.

THEOPHILUS P. HUNTINGTON'S STATEMENT.

In compliance with the rules of the Hampshire Agricultural Society, I present a statement of my accounts from April 1, 1855, to April 1, 1856, in ledger form, with complete inventories of my farm property at the beginning and at the end of the year.

THE FARM INVENTORY, APRIL 1, 1855.

Buildings and 49 acres of land,	$5,700 00	
Horses, cattle, swine and fowls,	597 00	
Hay, grain and straw,	219 00	
Carriages and farm tools,	195 00	
Manures of all sorts,	170 90	
		$6,881 90

CROPS.

Broom Corn.

Produce—2577 lbs. brush and 120 bush. of seed,	$242 16	
Expense of seed, labor and manure,	87 38	
		$154 78

Hay.

Produce, 10 tons at $15,	$150 00	
Expense of seed, and labor,	20 70	
		$129 30

On Side hill—(poor land.)

Produce—rye, beans, corn and stalks,	$196 00	
Expense of seed, labor and guano,	98 50	
		$97 50

Indian Corn.

Produce—286 bush. of ears and stalks,	$153 00	
Expense of seed, labor and manure,	86 02	
		$66 98

Garden Vegetables.

Produce—peas, roots, sweet corn, &c., &c.,	$97 77	
Expense of labor, manure and seed	52 67	
		$45 10

Oats.

Produce—oats and straw,	$42 00	
Expense of seed and labor,	11 75	
		$30 25

Buckwheat.

Produce on 1 3-4 acres—50 bushels,	$37 50	
Expense of seed and labor,	13 67	
		$23 83

Spring Wheat.

Produce on 3-4 acre—9 bushels,	$22 50	
Expense of seed, labor, and manure,	7 50	
		$15 00

Potatoes.

Produce on one acre—126 bushels,	$48 13	
Expense of seed, labor and manure,	48 38	
Loss,	25	

FARM STOCK.

Swine.

Value of pigs sold and pork on hand,	$226 00	
Expense of keeping and first cost,	168 13	
		$57 87

Cattle.

Value of milk, butter, and increase,	$305 85	
Expense of keeping,	282 00	
		$23 85

Fowls.

Value of eggs and increase,	$65 24	
Expense of feed, and fowls on hand,	45 62	
		$19 62

Horses.

Value of earnings of horses,	$110 75	
Expense of keeping,	91 92	
		$18 83

Labor.

Value of my labor abroad,	$14 69	
Value of labor hired on farm,	5 25	
		$9 44

Cash.

Money received during the year,	$1,248 13	
Money paid out during the year,	1,237 74	
Not accounted for,	10 39	
Total profits of the year,		$692 35
From which I deduct,		
Interest on investment,	$412 91	
Cash not accounted for,	10 39	
Loss on potatoe crop,	25	
		$423 55
Surplus Profits,		$268 80

THE FARM INVENTORY, APRIL 1, 1856.

Buildings and land,	$5,700 00	
Horse, cattle, swine and fowls,	400 00	
Hay, grain and straw,	266 00	
Carriages and farm tools,	235 00	
Yard manure and ashes,	91 50	
		$6,692 50

These accounts have been kept daily; very few days passing without one or more entries on the day book, which contains 22 long columns. As I trusted to my memory through each day, some items have been forgotten. The error in the cash account shows the importance of a correct method. The other accounts I think, however, are generally correct. I have avoided as much as possible making estimates.

It may not be out of place, here, to say that though for many years I have had a great curiosity to know the result of such accounts, yet I have always shrunk from the labor. It was not till after I had made a fair beginning, from personal considerations, that your premium was announced. The amount of the premium alone would be no sort of inducement to go over the ground again. If there is anything in this imperfect effort, to guide, or encourage to something more worthy, the labor will not be lost. Should anything appear meritorious, no small share of the credit will belong to my friend A. D. Phelps.

T. P. HUNTINGTON.

Hadley, April 2, 1856.

RECLAIMED SWAMP LANDS.

THEOPHILUS P. HUNTINGTON'S REPORT.

Two premiums were offered for the best experiments in reclaiming swamp land, not less than one acre, commencing in 1855. Entries were made by Messrs. David, Kelita and Avery D. Hubbard, of Sunderland, of different parts of a reclaimed swamp of thirty acres. Drains had been dug at proper distances, and an outlet forced, at great expense, through a stubborn rock The unprofitable swamp has become productive and valuable. The Committee award to David Hubbard the second premium, and recommend gratuities to the other competitors.

David Hubbard's acre was broken up, in the spring of 1855, was thoroughly dragged and planted to potatoes, which yielded a crop of 125 bushels. In May, 1856, he plowed, harrowed, and planted indian corn to three fourths of the piece, and manured with two bushels of ashes to the hill and hoed twice. The yield was 37 bushels. The remainder was planted with early Carter potatoes, and produced 81 bushels. The value of the crops of 1855 and 1856, was estimated at $110, the expenses at $29, and the net profits $81. The increased value of this acre was estimated at $70.

Kelita Hubbard's acre was burned over in 1854. In 1855 it was planted with corn and potatoes, and in 1856 with oats, rye and millet for fodder.

Avery D. Hubbard's acre is the same, which is described in Flint's Agriculture of Massachusetts for 1854, p. 71, and in the Hampshire Society's Transactions for 1854. It has produced good crops of hay the past two years. He estimates the net profits on this acre, for four years, including the increased value of the land, at $135,80.

UNDER-DRAINAGE.

DAVID HUBBARD'S STATEMENT.

I have underdrained two pieces of land. The first was by the side of my mowing, and was so wet that a team could not be driven on it. Small springs were numerous, and made it a mere quagmire. It bore a small quantity of coarse grass, which hardly paid for cutting.

In the year 1852, I dug 26 rods of ditch, about 18 inches deep, reaching to the hard pan. Having plenty of stones handy, which I could spare, I put them in, three to four inches deep, leaving a hole in the bottom of the drain for the water to run off. This passage was made by placing two stones in the form of the letter A, and also by placing a flat stone over these two. Then the dirt was thrown back again, *turf downward*, and thus prevented the dirt sifting among the stones. The surface of the ground was made level like the rest. I then proceeded to cart on ten loads of sand.

Each year I put on a small quantity of cheap manure, and it has brought in a good bottom of English grass.

Value of Crop.		
1853 and 1854, one ton, - - - -	$7 00	
1855 and 1856, one and a half tons, - -	10 50	
Fall feed, - - - - - - -	2 50	
		$20 00
Expenses.		
Draining, - - - - - - - -	$2 50	
Laying stone, and covering ditches, - -	3 50	
Hauling sand, - - - - - -	2 00	
Value of manure, carting and spreading, -	5 00	
		$13 00
Net profit on crops, - - - - -		$7 00
Increase in value of land, - - - -		$20 00
Total profit of land and crops on 42 acres, for 4 years, was - - - - -		$27 00

The second piece drained was a low spot in a piece of tillage, always so cold and wet that seed would rot in it. I put in seven rods of drain, it became dry and warm for cultivation, and thus far its produce has exceeded my highest expectations.

PASTURE LANDS.

MOSES FIELD'S STATEMENT.

My experiments indicate that plaster of paris improves old pastures where the underlying rock is new red sand stone or the conglomerate or pudding stone, which is made up of rounded granite boulders, and pebbles cemented together, and slow of decomposition. In 1851, I applied 500 lbs. of plaster to five acres in Leverett, north west of Long Plain, upon the lower slope of Mount Mettawampe, with marked results. In two months, the imperfection of the work of sowing was indicated by waves in the grass, as distinctly as the waves in a field of badly sown grain. In October, 1854, I sowed sixty acres. The effect was not visible the first season, nor till the latter part of the second; but, at the third season, the difference in the seed was fully marked. On the more exhausted pasture lands, I think the quantity of plaster should be two or three hundred pounds to the acre for immediate effect. Pasture that for sixty years has borne little nutritious feed, now, is clothed with waving grass.

But where the underlying rock is granite, unstratified, abounding in mica and iron, and susceptible of rapid decomposition, when exposed to the atmosphere, my experiments in the application of plaster have been followed by no visible effects. Of this character is the land on the low hillocks, south east of Long Plain, in Leverett.

ORCHARDS.

WILLIAM P. DICKINSON'S REPORT.

Dr. Trow, of Sunderland, has a hundred apple trees, set upon a rich piece of ground, in the rear of his house. The trees are very straight and thrifty, and show that they have had good care. If the the varieties prove to be what the Dr. supposed they were when he purchased, they will soon repay his care and labor. The apple orchard, entered by John R. Robinson, of Sunderland, contains sixty

trees—fifteen less than the rules require. His trees are set upon a side hill, are very large and thrifty, and show good treatment. We hope Mr. R. will set fruit trees on the remainder of his lot, as the soil is well adapted to their growth.

The Reclaimed Apple Orchard of Kelita Hubbard, of Sunderland, shows what can be done with old, unsightly apple trees. His trees are scattered about his farm, and most of them work well. By scraping, manuring and grafting, he has single trees, which produce several barrels of Apples.

The Nursery of William Hunt, of Sunderland, we found in good condition, well stocked with apples, but without other fruit, if we except a few small pears. His trees have a good growth, and he has none but the best varieties. We would suggest to all who are setting trees, to be very careful whom they purchase of, and to get only the best kinds of fruit.

In conclusion, your committee would say that they should have been happy to have visited other orchards within the limits of the Society, but had no invitation to do so.

KELITA HUBBARD'S STATEMENT.

Old Orchard Reclaimed. The land on which my orchard stands, varies from sandy to wet gravel, and I have thirty trees which have been reclaimed. Their ages vary from twenty to one hundred years. They had been neglected for many years, were considered almost worthless, and bore but very few apples. The best limbs were grafted, and the others taken off. I have usually taken three years to remove the old limbs, and have been particular to have this and the grafting done by an experienced hand, that the top may be well formed. I have been careful to remove all the young sprouts, once or twice a year, and have endeavored to keep them in a healthy condition by labor and manure.

I have grafted with Greenings, Baldwins, Seek-no-furthers, Nonesuch, Boston Russetts, Pippins, and many other varieties. The orchard now produces a hundred bushels of apples

PLOUGHING.

CHARLES H. FIELD'S REPORT.

Ploughing must be considered the basis, or groundwork of all good farming, and the sturdy ploughman we honor as the back-bone and regulator of society. To him we award the double honor of causing "two blades of grass to grow where, before, there was but one;" for, without a deep and thorough pulverization of the soil, combined with proper culture, we cannot expect to see any great results in the art of husbandry.

What constitutes good ploughing? This question has been discussed with reference to the merits of deep or shallow ploughing, of wide and flat, or narrow and sliced furrow, and of subsoiling or bringing the subsoil to the surface until amid "confusion worse confounded," many farmers are ready to repudiate all book-farming, and plod along in the beaten track their fathers trod. Observation and experience have, however, produced some practical results and we shall venture to express our own views of some of the more important requisites of good ploughing.

A wonderful improvement has been made in the construction of the plow. The ancient, crooked stick, tipped with iron, requiring all the strength and ingenuity of the holder to even scratch up the surface of the ground, has given away to the elegantly finished subsoil, stubble and double or Michigan plows—which seem almost like things of life, so well adapted are they to the purposes for which they were designed. It is a matter of the *first* importance that we select a plow of size and construction suited to the soil we wish to cultivate. Next in order comes the team, which must be well fed, well trained, and sufficient to overcome the draft with ease, moving strongly and evenly in the furrow: and last, though not least, a careful and experienced driver, who practices *moral suasion*, rather than *too free* use of the lash or goad. In the use of single teams of horses or oxen, it may be a matter of economy for the ploughman to manage the team himself, though we are by no means a stickler for the old proverb,—

"He that by the plow would thrive,
Must himself both hold and drive."

With such an outfit any man, of moderate skill and judgment, may manage the plow, and have a smooth and evenly turned furrow. Most land should be ploughed deep, or subsoiled, which will render it more retentive of moisture, and less liable to be affected by drought. Our own experience is, that the depth should be attained gradually, as too much of the subsoil thrown upon the surface at once, will injure the soil for a few years. Loamy land, with rich subsoil, may be ploughed deep without any such results. Reason and experience must be our guide, but as safe a rule, perhaps, as any, is to "Make light lands heavier, and heavy lands lighter." The width of the furrow must be in proportion to the depth, in order to turn it properly. We prefer a wide, flat furrow on most soils, as it completely covers all vegetation, causes the turf to rot quicker, and is much easier to cultivate.

But we are reminded by what we witnessed at the ploughing match of the Hampshire Society, that we had much better be a *doer* than a *preacher* of ploughing. The difficult land, ploughed with accuracy and skill, rarely excelled at any exhibition in the State, testifies to the ability of the farmers within its limits.

Agriculture should be protected and encouraged. Not only is she the mother of the arts, but to her votaries must we look for the actual necessaries of life, as well as for the stability and prosperity of our government. We pity any, who, with silly self-conceit look with derision upon the sturdy ploughman, with his huge, honest hand and weather-beaten brow. Let such but follow the plow beneath a scorching sun, and breathe the pure air of heaven, and the delicate form and sickly hue shall give way to the sinewy arm, and the countenance glow with health. Thus shall the *plow* become the benefactor of mankind; the spear shall be beat into pruning-hooks, and the sword into plough-shares; nation shall not lift up sword against nation, neither shall they learn war any more. Be it ours to award to the husbandman the dignity and honor, justly his due.

"In ancient times, the sacred plough employed
The kings and awful fathers of mankind:
And some, with whom compared your insect tribes
Are but the beings of a summer day,
Have held the scales of empire, ruled the storm
Of mighty war: then, with unwearied hand,
Disdaining little delicacies, seized
The plough and greatly independent lived."

MANURES.

THEODORE G. HUNTINGTON'S REPORT.

Of the three main branches of agriculture, the treatment of crops of the soil, and of manures, perhaps less is known with certainty concerning the latter, than either of the others. Although the general effect of manures is unquestionable, their specific action is in many instances involved in obscurity.

The subtle processes by which substances, in themselves worthless and oftentimes offensive, are converted into forms of living beauty and utility, taking place as they do under conditions that elude our keenest observation, it is only by the slow process of trial, experiment and generalization, that we are able to arrive at any definite results on this important subject. Much has already been done in this way, particularly in regard to compost manure; and your committee take this opportunity to say, that while they value every practical exhibition of the importance of these manures, they have not the vanity to suppose that, after the thorough treatment the subject has received at the hands of our agricultural chemists, any crude thoughts of theirs would be entitled to consideration.

There was but one claimant for the premium on compost manure, and this was for the making and not the application of the manure.

The Hampshire Society encourages experiments, not only with compost manures, but also with guano, and the chemical or mineral manures.

These are getting into very general use, and it is of the utmost importance that farmers should become acquainted with their actual value. Your committee consider that single trials of this kind, while they add something to the general stock of information, and bear testimony in individual instances to their value, determine nothing as to their economy or their permanent effect on the soil. For instance, if a single application of guano, (though it may produce an immediate good effect) should leave the land in a worse condition than before, it may not be good economy to use it. If premiums were offered for experiments in these manures, to be continued for four or five years suc-

cessively, it might lead to some general conclusion as to their permanent value.

Then, again, we want to know whether it will pay to use them. There are some who stoutly deny this, and well they may, when there is nothing but guessing to prove that they do pay. There is nothing like careful and accurate experiment to quiet all doubt in this matter. If a man has ocular demonstration in the half bushel, that it pays to use guano, or superphosphate, and gives a handsome profit besides, he has something that he can rely upon in his future operations, and his experience may be made useful to others.

With regard to the use of guano, there are two points particularly, on which much uncertainty rests, and which, it is to be hoped, the inducements held out by the Society, in the way of premiums for experiments, may be the means of elucidating.

One of these points involves the question whether the action of guano continues more than one season: the other, whether land can be kept from ultimate deterioration by this manure alone. In regard to the first of these questions, we have isolated facts, which go to show that its good effects are *not* exhausted in a single season. A case came under the observation of one of your committee, in which guano, applied on the ridges of peas in the spring of 1855, produced before the usual time for ploughing the present season, a luxuriant, spontaneous growth of white and red clover. We might cite other instances of a similar nature, but not enough to establish a general principle. It is gratifying to know that with regard to the other point, the possibility of keeping land in good condition by the use of this manure alone, that that there are intelligent and enterprising farmers among us, whose experiments will go far to settle this much mooted question. We have in mind, particularly, a gentleman whose experience as given to the public not long since, already runs through a period of several years, and who is determined to satisfy himself, if no one else, on this subject. We incline to the opinion, that it can be done. It certainly requires good evidence to convince one that the pittance of two pounds of manure to the square rod should produce eight pounds of corn, and as much of corn stalks, but these are facts that cannot be denied, and if it will do this on the lightest soils for one year, there seems no good reason why it should not for any number of years.

What is most wanted now is some philosophical explanation of the fact. If it could be shown that guano, besides furnishing valuable

food to growing crops, acts also as a solvent to substances otherwise worthless, it would relieve the agricultural public of a vast deal of anxiety.

But our remarks are already too far extended and we leave the subject, in the hope that the farmers of Hampshire may never forget that accuracy in conducting experiments is the only true criterion of their value, either to themselves or the public.

S. D. CROCKER'S STATEMENT.

Much has been said, as well as written, of careful saving and judicious application of manures. It has been estimated that many farmers might better husband their resources and convert into manure much that is now wasted. The importance of this matter, in connection with the farmer's success, and my hope of saving much that might otherwise be lost, led me, four years ago, to adopt the practice of stabling my cows at night, through the summer season.

My stable floor is covered with muck or loom, to the depth of five or six inches, and this is strewn with leaves, straw, and anything that will answer for bedding. These materials, as fast as they become saturated and mixed with solid manure, are thrown, through the stable window, into my hog yard; and, here, they are subjected to a continual mixing process by the swine, with fresh muck, horse-manure, ashes, plaster, old brine, &c., which are thrown into the hog pen, from time to time.

In the absence of a barn cellar, or sheds, this method, according to my experience, creates three times as much manure, as the common practice of allowing the excrements of cows to remain in the open barn yard, and exposed to the wasting influences of the sun, air and rain. The liquid manure, which is supposed by good judges to be equal, in a given time, to the solid manure, is saved. The solid manure, being mixed with muck and other fertilizing substances, retains its own good qualities without waste.

I have never discovered any injury to my cows from keeping them stabled, during the warm season. They have a free circulation of air. With two cows, three hogs and a horse, I estimate that I make, between the first of April and December, forty cart loads of good manure; worth one dollar per load, at a cost which I think does not exceed fifty cents per load. I make no account, however, of the muck, except the expense of digging it in the autumn, and sledding

it home in the winter. For the reason, that, by cutting wide and deep ditches, through the principal springs, I have, within four years, drained nearly two acres of swamp land, that were formerly covered with water, and now are sufficiently dry for the plow.

GUANO.

ALBERT MONTAGUE'S STATEMENT.

I wish to call attention to a few careful experiments, made the past season. The first tends to prove the value of guano, as compared with first quality of hog manure, on cold land in corn. On such land, I ploughed in a fair coat of manure from the yard, then furrowed it all out, having previously made it fine by the use of the harrow and bush. On one half of this piece, I put hog manure in the furrow, at the rate of 12 loads to the acre. On the other half, I put 150 pounds of guano to the acre. The cost of the manure applied to the land, was 15 dollars, and of the guano, 5 dollars, making a difference of 10 dollars per acre. As near as I can judge, at the present time, there are ten bushels more of corn on the half guanoed, than on the other half. There is certainly a much heavier growth of stalks, but as it is not yet husked, I cannot state the exact difference.

Having a piece of sandy plain, too poor to produce anything but a light crop of rye once in three or four years, I thought I would raise a crop of corn on it. I accordingly ploughed in 300 pounds of guano on an acre, and fallowed it. I gave it a light harrowing, planted, hoed it twice, at a cost of eleven dollars, besides the plowing, which I should have done if I had not planted it. I have husked nearly the whole of it, and I think I can safely calculate on twenty-five bushels of good sound corn—making a net profit of $14 or 130 per cent. The profit on this acre would about purchase two acres of such land at the present market value. I also harrowed in, a year since, at the rate of 100 pounds of guano to the acre, at the time of sowing rye, and it increased my crop seven bushels. These and other trials have fully satisfied me, that while we can procure guano for three cents per pound, we may be confident, that if used aright, a fair annual investment in it will return a good income, whether it is applied to warm or cold lands.

THEODORE G. HUNTINGTON'S STATEMENT.

The piece of ground on which my experiment was made is a cold, dry loam. In the summer of 1854, it was in grass, and probably did not produce 500 pounds of good hay per acre. In the spring of 1855, it was ploughed, and manured at the rate of twenty loads per acre of composted manure, consisting of muck, ashes, plaster and saltpetre, which cost, on the ground, one dollar per load. I planted to Carter potatoes, and obtained a small yield of forty bushels per acre, but of good quality.

The last spring, the ground, after being ploughed, was dressed with 200 pounds of guano per acre, a small piece on the poorest part of the lot being left undressed for the purpose of noting the difference. The piece was then sowed to oats and grass seed. In harvesting, I measured off one rod square of the unmanured ground and a like quantity of the manured, the two being within a few feet of each other. The two patches were reaped, taken home and put in the barn. The result was as follows :

The rod dressed with guano yielded 12 quarts oats weighing 10 lbs., straw 10 1-4 lbs. This per acre would be—

53 1-2 bushels at 50 cents, . . .	$26 75	
1040 lbs. straw at $8	6 56	
		$33 31

The undressed rod yielded 8 quarts oats 5 6-16 lbs., making per acre :

29 bush, 30 lbs. per bush., 50 cts. per bush.,	$14 50	
820 lbs. straw at $8, ...	3 28	
		$17 78
Difference in favor of guano,—		
Per acre, ...		$15 53
Deduct cost of 200 lbs. guano, . . .		6 00
Net profit per acre, ...		$9 53

It will be noticed in this experiment, that the oats not only yielded much more, but were of much better quality, when the guano was used. As far as my observation goes, this manure, when applied to cold land, produces a much more striking effect upon a crop of oats, than upon one of corn.

TURNING IN GREEN CROPS.

KELITA HUBBARD'S STATEMENT.

I have practised, for several years, turning in rye for manure. My land has nearly doubled in value. I can raise two bushel of potatoes, corn or rye, where I could raise but one a few years ago. I plough my land as soon as convenient after harvest, when my cattle have little to do. The feed in the fall pays for ploughing and seed. I turn in the rye crop in the spring, and think it is equal to five loads of manure to the acre. This operation destroys the weeds, pulverizes the soil, and saves much labor in the cultivation of the next crop.

CROPS.

DR. DAVID RICE'S REPORT.

The Hampshire Agricultural Society offers premiums for the best crops—not to encourage farmers to raise great crops, regardless of expense, on their best lands, but rather, with economy, to raise the best and largest crops, at a reasonable cost of land, labor and manure. No premium is offered for crops raised on new lands which contain, usually, all the elements for large crops. This agricultural association offers premiums on crops, with reference to the value and condition of the land; the mode of husbandry; the time of plowing; the depth and the number of times; the kind and cost of manures, and how and when applied; time of planting and sowing,—variety of seed used, mode of culture, when and how harvested, the whole cost, and value of the crop, and requires a full and faithful statement from each competitor. A medium crop, grown on not the best soil, by economical and skilful husbandry, may justly obtain a higher premium, than a very large crop, raised on the same, or on very valuable land, at a great cost of labor, foreign manures, &c. Some lands are so rich, and so well adapted to particular crops, that neither skill, nor manure, and but a moderate amount of labor, is needed to make them

bring forth abundantly. No premiums should be awarded, where dame nature does all the work, and throws up from her own bosom a spontaneous and abundant growth.

What benefits will the farmer derive, by thus endeavoring to raise large crops? In the first place, if successful, he will most certainly be the possessor of the *large crop itself*, and may secure a premium from some Agricultural Society, by conforming to its rules and requirements. Again, he will have all the benefit of his experience and experiments, in selecting, preparing, manuring and planting; also, in seeding and harvesting. He will learn how to adapt the crop to the particular piece of land most fit for it;—how to prepare with the least expense the most valuable and fertilizing manures. He will find that *home made* manures, may be more economical than *imported* manures. He will learn what kind of manure each crop requires, and when and how to apply. His inventive genius may bring to his aid new labor-saving machines. He will learn to do everything in the right time and in the right manner. *Method* will become one of his watchwords, and *economy* another. Not entirely contented with his own experience and experiments, he will strive to learn from his neighbors, and from agricultural papers and books. In a word, the endeavor thus to raise large crops tends to make the farmer a student, a philosopher and chemist; a learner from the great book of nature, and a shareholder in her *bank stock*—the surest and most reliable bank stock in the world!

I will close by asking the farmers to strive to develop and illustrate the principle of making two spears of grass to grow where only one grew before.

The competition for the Hampshire Society's premiums on crops, was greater this year than in any former year. The whole number of crops entered was forty, viz: two of carrots, two of turnips, three of potatoes, four of oats, four of rye, seven of wheat, seven of indian corn, and eleven of broom corn. The statements of the successful competitors are annexed.

INDIAN CORN.

Albert Montague's Statement.

The acre of land on which my corn grew, is a sandy loam. It was in broom corn last year, when it received a light coat of manure on the surface. The broom corn was light, not more than six or seven hundred pounds to the acre. On the 27th of May last, I carted 15 loads of coarse manure from my yard to this piece, and ploughed it in. I ploughed seven inches deep, and

the next day I harrowed it fine, furrowed it with a small plough, and in the furrows spread 150 pounds of guano, and planted with Woodward's planter. My hills were three feet apart from centre to centre, and the rows about 3 feet. I think there was no hill missing on the acre. Some kernels of corn, which were left a little distance from the main hill, produced five ears of corn, viz: three on the seed stalk, and two on the suckers. I hoed three times, but, the last time, I did not use a horse, as the corn was too large. I cut it the 24th of September, carted and husked it the last of October. It was very dry when husked. I counted the baskets and, by shelling one of them, I found 93 1-4 bushels of shelled corn, weighing 56 pounds to the bushel, and just about the same by measurement. I weighed one stack of fodder, and by multiplication, I learn there were 7200 lbs. I give the statement of expenses as near as I can. I charge only 3-4 of the yard manure to the corn crop, as I believe it has not taken more than that.

Value of Crop.

93 1-4 bushels of corn $1,	$93 25	
7200 lbs. of corn fodder, $6,	21 60	
7 bushels of soft corn, 25 cents,	1 75	
		$116 60

Expenses.

Manure on the field,	$13 50	
Guano,	4 50	
Ploughing, harrowing and planting,	3 00	
Hoeing three times,	4 00	
Harvesting,	8 00	
Interest on land,	4 00	
		$37 00
Net profit,		$79 60

SUNDERLAND, Nov. 10, 1856.

John M. Smith's Statement.

My corn was raised on land which may be called clayey loam, and measures five acres, sixty-four rods. I had about three acres of it in grass for three years previous to 1855. In the spring of 1855, I ploughed in ten loads of manure to the acre, planted corn, and had a fair crop. In the spring of 1856, I put on 12 loads to the acre, and ploughed in. The remainder of the piece was in grass for three years previous to this season, and was manured in the same way excepting one acre, which was cultivated as follows: One half was ploughed in November, 1855, and the other half in the spring of 1856. 20 loads of compost manure were spread on the whole acre and harrowed in. I could perceive no difference in the growth of the crop, in consequence of the two modes of ploughing. There was no trouble from

worms. I ploughed seven inches deep and planted with Woodward's planter, between the 15th and 25th of May, and put in eight bushels of ashes to the acre. The corn is the "twelve rowed" or "Dutton" variety. The stalls stood three feet, four inches apart each way. The yield was at the rate of 83 1-3 bushels to the acre, and the net profit $62,50.

Value of Crop.

450 bushels of sound corn at $1, ...	$450 00	
15 tons fodder $90, 8 bushels of soft corn, $2, . .	92 00	
		$542 00

Expenses.

Manure $80, applying it $12,50, seed $1,50, planting $3,	$97 00	
Ploughing & harrowing $10, hoeing $12,50, harvesting, $40, interest and taxes $45, ...	$107 50	
		$204 50
Net profit on 5 2-5 acres, ...		$337 50

SUNDERLAND, Nov. 15, 1856.

BROOM CORN.

Albert Montague's Statement.

I ploughed the 18th of May, seven inches deep, put 10 loads of manure in the hills, which were in rows, 2 1-2 feet apart, and used Woodward's planter. Care was taken, when hoeing, that the stalks left standing did not crowd each other, and I left from six to ten stalks in a hill. I hoed three times, carefully removed the weeds from the hills and left each stalk upright. I believe much depends upon the care taken in the infancy of a broom corn crop. I harvested the 8th of October.

Vlue of Crop.

1559 pounds of broom brush at 7 cts., . . .	$81 13	
88 bushels of seed at 45 cts., ...	39 60	
		$120 73

Expenses.

Manure $10, ploughing and planting $3, . . .	$13 00	
Hoeing, harvesting, scraping $18, interest on land $9	27 00	
		$40 00
Net profit, ...		$80 73

SUNDERLAND, Nov. 15, 1856.

N. Austin Smith's Statement.

My broom corn was raised on one acre and four rods of land, in Sunderland, on the bank of Connecticut river. The soil is sandy loam, and it has been planted for several past years with broom corn. The stalks of last year were harrowed down and ploughed in 9 inches deep, about the 14th of May. I sowed on 3-4 of the piece 300 pounds of guano mixed with 150 pounds of plaster, broadcast and ploughed in; but on the other fourth I put three loads of good manure, scattered in the furrow. The whole was rolled after ploughing; was planted with Woodward's planter, hoed three times, and harvested about the middle of October. During the summer, the broom cor nupon the guanoed land was of darker color, and a few days later, but at harvesting there was no great difference in the crop.

Value of Crop.

1041 pounds of broom brush at 7 cts.,. . . .	$72 87	
80 bushels of seed 45 cts., ...	36 00	
		$108 87

Expenses.

Harrowing and planting, $2, guano, plaster, manure and application $14,25, ...	$16 25	
Rolling and planting $1, Hoeing $6, Harvesting and scraping $10, interest on land $9 . . .	26 00	
		$42 25
Net profit, . . , ...		$66 62

SUNDERLAND, Nov. 15, 1856.

Alden Graves' Statement.

My broom corn was raised on one acre of worn out, plain land, for which I paid twelve dollars and fifty cents per acre. It was planted to broom corn last year. I put on fifteen loads of compost manure, ploughed it in, then sowed three hundred pounds of Peruvian guano, mixed with as much plaster and harrowed it in. I planted with Woodward's planter, in rows three feet apart, and hills eighteen inches apart, and left only four stalks in the hill. I hoed three times, and harvested the first week in October.

Value of Crop.

814 pounds of broom brush, at 6 cts., . . .	$48 84	
66 bushels of seed, at 37 1-2 cents, ...	24 75	
		$73 59

Expenses.

Ploughing, harrowing, planting $2,50, manure, guano, plaster $25,00, ...	$28 00	
Hoeing $8, harvesting, scraping $8, interest on land 75 cts.,	16 75	
		$44 75
Net profit, ...		28 84

SUNDERLAND, Nov. 15, 1856.

WHEAT.

William Bowman and Son's Statement.

The land on which our wheat was raised, lies on the bank of the Connecticut river, and measures 148 rods. The soil is a sandy loam. We mowed a heavy crop of clover in June 1855, and the 5th of September, we ploughed in the second crop, which was good. On the next day, we sowed 1-2 bushel of wheat, and harrowed till the land was mellow as an ash heap. We sowed six bushels of plaster and ashes in the spring of '56, and, though the growth of straw was not large, yet the heads were long and well filled with a large and plump berry.

Value of Crop.

28 1-2 bushels of wheat at $2,00,	$57 00	
Straw valued at	7 00	
		$67 00

Expenses.

Ploughing, sowing and harrowing,	$3 00	
Seed $4, plaster, ashes and application $1,50,	5 50	
Harvesting and threshing,	6 00	
Interest on land,	5 00	
		$20 50
Net profit,		$43 50

SUNDERLAND, Nov. 15, 1856

Theophilus P. Huntington's Statement.

The land, on which grew my crop of spring wheat, lies near the bank of Connecticut river, in Hadley, and is more sandy, than our alluvial soils generally. In 1854, it was well manured and produced broom corn. In 1855, no manure was used. About the middle of April, 1856, two bags of Guano were sown, the principal part of it being ploughed under, and the remainder harrowed in with the seed. I cleansed as much as possible one and a half bushels of seed wheat, soaked it in strong lime, and afterwards by careful picking over, freed it from foul seed. The ground was harrowed and rolled. The crop was harvested about the last of July, and threshed with flails the forepart of September. The Scotch fife was the variety sown, and the crop will be kept till spring for seed.

Value of Crop.

24 bushels, 20 quarts,	$49 25	
3-4 ton of straw, $6,50	4 87	
		$54 12

Expenses.

Plowing and sowing, $2, seed $3,75,	$5 75	
300 pounds of guano, at $3,05 per cwt.,	9 15	
Harvesting $2, threshing $4 50,	6 50	
		$21 40
Profit,		$32 72

HADLEY, Sept. 11th, 1856.

OATS.

Albert Montague's Statement.

The land on which I raised my oats, is a sandy loam. It was in corn last year, when I ploughed in 28 loads of manure. The piece contains 1 3-4 acres, and was ploughed the last of April seven or eight inches deep. I harrowed it well, and rolled it. I sowed seven bushels on the piece, cut the oats the first day of August, and threshed in September and October.

Value of Crop.

136 bushels of oats at 50 cts.,	$68 00	
3 tons of straw at $8,	24 00	
		$92 00

Expenses.

Seed, plowing, sowing, $8, harvesting, $11,	$19 00	
Interest on the land,	7 00	
		$26 00
Net profit,		66 00

SUNDERLAND, Nov. 15, 1856.

POTATOES.

George Dickinson's Statement.

The ground, which I planted with Carter potatoes the past season, contains 86 rows, and is valued on the assessors' books at $195 per acre, first quality meadow land. It was stocked down with herdsgrass and clover in 1851, and mown four years, twice each season, without any manure. In the first week of December, 1855, it was ploughed from eight to ten inches deep the sod being flatly inverted. During the last of April, 1856, six loads of manure, from the hog yard, were spread on, and cultivated in. The ground was then thoroughly harrowed, and the holes dug, 2 by 2 1-2 to 3 feet apart. A mixture of hen manure and plaster was then applied, at the rate of a small handful in each hill. I used 3 1-2 pounds of seed; cut the largest potatoes twice, and the smaller ones once and one piece I dropped in each hill. The potatoes were hoed early in April, soon after they were fairly up, and three times afterwards, the cultivator being used each time, and moderate hills being made. The crop was dug about the middle of October.

Value of Crop.

95 1-2 bushels table potatoes, at 87 1-2 cents,	$83 56	
13 1-4 do small do at 25 cents,	3 31	
		$86 87

Expenses.

Ploughing $1,25, manure $11,25, cultivating $1, harrowing 50 cents, seed $2,25,	$16 25	
Planting $1,25, hoeing $3,50, digging $6,25, interest $6, Taxes $1,	18 00	
		$34 25
Net profit,		$52 62

HADLEY, Nov. 15, 1856.

O. & F. H. Williams Statement.

The ground on which were raised our potatoes, has been in grass, as a pasture, for three or four years. The soil is light and sandy, on a side hill, lying toward the south west. April 24th, we ploughed from three to six inches deep. The furrows were turned and filled with manure, after the potatoes were dropped, together with a handful of plaster and salt. These were turned back, covering all about 4 inches deep, and saved at least one half, if not three fourths the labor of planting with the hoe. Our seed was the genuine peach blow. We hill with all the dirt we can, and imitate in this respect the Irish mode of tillage, which we consider preferable to flat tillage. We used small potatoes, put one into each hill, and where they were large, cut them and used at the rate of 8 or 9 bushels at the acre.

Value of Crop.

123 bushels at 50 cents, ...		$61 50

Expenses.

Plowing and harrowing $2, manure $8, manuring, furrowing and covering, $2,80, ...	$12 80	
Seed $1,20, hoeing $3,50, weeding $1,25, harvesting $8, interest and taxes $2, ...	15 95	
		$28 75
Net profit, ...		$32 75

SUNDERLAND, Nov. 15, 1856.

CARROTS,

David Hubbard's Statement.

The land on which my carrots were raised, is a sandy, gravelly loam, which has produced corn the past two years, measures sixty-six rods, and is in a fair state of cultivation. I ploughed in May, 1856, and subsoiled about fifteen inches deep. I put on twenty loads of compost manure, ploughed in ten loads, harrowed in the other ten, and raked thoroughly. I planted about the last of May with one of Ruggles, Nourse & Mason's seed-sowers, about one third of a pound of pure orange carrot seed, in rows eighteen inches apart. At the third hoeing, I thinned them, leaving them from three to five inches apart, and filled in with Sweedish turnips where the carrots were missing.

Value of Crop.

272 8-11 bushels, 55 pounds per bushel, at 33 cents, . .		$90 00

Expenses.

Manure $15, ploughing and harrowing $2, seed and sowing $1, ...	$18 00	
Carting and spading manure $2, hoeing $8, harvesting $7, interest $2,50, ...	19 50	
		$37 50
Net profit.		$52 50

SUNDERLAND, Nov. 15, 1856.

FARMING IMPLEMENTS.

DAVID DEXTER'S REPORT.

This department of the Mechanic Arts presents claims of paramount importance As a part of the exhibition, it may well excite admiration, improve the taste, gratify the pride and promote the material interests of an industrious people. Improved farm implements measure the progress of civilization. The scale of social elevation of nations, attained in England, France, the United States and in India or Turkey, is indicated by the farm tools, used in those countries. With the rude plow of half-civilized nations, the most skilful would fail to turn the furrow as we have seen it turned to-day, and all the noble oxen from Leverett could not stir the subsoil. In the construction of agricultural implements, inventive genius and enterprise have been tasked. What was once made by any one, who could use a saw or strike an anvil, is now made in large manufacturing establishments, with expensive machinery. The rapid succession of improvements has been truly astonishing. If the old patterns of hoes, shovels, manure and hay forks, fanning mills, ploughs and wagons, spinning wheels and looms—used a quarter of a century since, could be collected and shown at our annual fair, beside our improved implements, the exhibition would be amusing, as well as useful. Shall it be done at the next exhibition of the Hampshire Society? Some articles have beeni mproved, and others entirely superseded by new intentions. The hand cards, hand looms and spinning wheels have been safely stowed in the garret, unless perchance the rim of the latter be used to expand garments it once helped to fabricate. The sickle and flail give place to the reaper and the threshing machine. Mr. Stetson's mowing machine indicates that even the scythe may be numbered among the things which were. Mr. Stetson has an important improvement. It has not been thoroughly tested, but a trial of it during exhibition showed its decided superiority over a Ketchum's machine, which competed with it. It may have been in view of some such machine, that the Irishman asserted that the easiest work he ever did, was to see a Yankee mow.

The introduction of improved farm implements tends to emancipate men from the necessity of exhausting labor.

In view of the important interests centering in this department, your committee would like to have had more funds at their disposal, and to have awarded tens where we have given units.

STOCK.

THEODORE G. HUNTINGTON'S REPORT.

In looking over the various descriptions of stock that enriched the Hampshire Society's Fair grounds, the thing that has struck us most forcibly was the great inequality in the different departments. While the show of oxen, both for the stall and for the yoke, was unequal to what it has sometimes been, that of horses and swine has probably never been excelled. We looked in vain for rival strings of cattle—Leverett alone appearing on the ground, but with a representation that did her honor.

Of Bulls there was a fair display; and the different breeds were well represented by excellent specimens. The Durham Bull, "Uncle Tom," owned by Mr. Augustus Clarke of Granby, was a prominent object of attraction. His size and perfect symmetry of form, joined to great apparent docility and fine handling, must make him a valuable animal for the breeder of this justly celebrated stock.

Then there was the two year old Ayershire owned by Mr. Luke Sweetser, of Amherst, who has lately entered the lists as a breeder of this kind of stock, and whose success thus far ought to inspire our more experienced farmers with a salutary fear, lest they be outdone in enterprise and skill, by one who has already won his laurels in another profession. This breed is for the dairy, as every one knows, and it is confidently believed, that few if any animals in the country can boast a more worthy ancestry, than the one in question. His owner has been assured that his grand dame, on the mother's side, has given the almost incredible quantity of 36 quarts of milk per day. This bull is one of Mr. Sweetser's herd on exhibition—most of them being young,

but giving promise of superiority in those qualities, for which the Ayershire are noted.

With regard to working cattle 4 years old, the committee noticed that the cattle of Mr. Lorenzo H. Pomeroy, of Amherst, performed their work admirably at the drawing match, and showed themselves to be under complete control, and in every respect gave satisfaction. But those of Mr. Hamilton, of Shutesbury, being only two years old, drawing the same load and exhibiting the most perfect docility and training, excited the wonder and admiration of all who witnessed their performance. After such unqualified praise as this, we hope Mr. Hamilton will retain those steers another year, and give them good training and keeping, and when another Fair day comes around, may he win golden opinions and dollars too, as a reward for his tact and skill. There is altogether too little time and attention given to the proper training of cattle, and whenever we find a man, who takes an honest pride in the art and pursues it as a part of his business, we hail him as a public benefactor.

Of steers, we noticed a few pairs that were very fine. Are the farmers about to discontinue the raising of oxen: or are they losing their interest in our exhibitions? We should be very sorry to believe either of these things, yet if we judge them according to their works, it seems difficult to avoid one or the other of these inferences. As a striking contrast to this lack of public spirit—to call it by no harsher name—we might instance the example of Cephas May, whose twin Durham steers, four years old and entered as fat cattle, were magnificent animals, and redeemed this department.

There is a little history connected with these steers, which we beg leave to introduce here, both for example and encouragement. We have learned incidentally, that they were brought from the somewhat famous town of Wilmington, Vt., in a one horse sleigh, when calves. They have since been in the possession of Mr. May, and have been on exhibition, at least four times, always in the yoke, and always doing him honor by their thrift and other evident tokens of kindly management. They have already attained the remarkable weight of 3,800 lbs. If we had more such men among us to excite and keep alive a spirit of honorable rivalry, we should perhaps find it less necessary to resort to the somewhat questionable practice of horse trotting matches, and the kindred et ceteras, to call a crowd together, and give patronage to agricultural enterprises.

Of cows, we found nine entries. Among them a grade Durham, belonging to President Stearns; another belonging to Mr. Williams, of Sunderland, and a third to Mr. Cobb, of Amherst, intended as stock animals, and showing good points for that purpose.

We noticed two choice Durham heifers of Mr. Augustus Clarke of Granby. If this gentleman continues to breed such animals as these, he may be sure of winning prizes as often as he chooses to drive them to the Fair grounds.

As sheep raising is evidently not a favorite branch of husbandry with us, it is a matter of surprise, perhaps, that there should have been any on exhibition, rather than so few. We noticed some lots, which appeared to be a mixture of the south down, with our common stock, and pretty fair specimens. We believe that if the practice of sheep husbandry, with reference particularly to the rearing of lambs for market, should become more general, it would be found quite as profitable as the rearing of other kinds of stock. Why should it not be so, when each sheep yields an annual income in fleece, and produces one or two lambs, whose meat sells for more than almost any other in the market? We would by no means recommend going into the business largely, but almost every farmer has more or less fodder at his disposal, which is better consumed by sheep than by anything else. We have frequently found that pastures and stubble ground mowed over, will yield them much feed which no other animal will touch. By a little pains taking in this way, almost every farmer can collect enough to winter from fifteen to twenty-five sheep, without encroaching very largely on the supply for his other stock, and he will find the income derived from them a very considerable item.

We pass on to swine, and here, candor compels us to acknowledge, that our highest wishes were gratified. There are swine enough in this region—good ones too—and it so happened, this year, that there was a general disposition to show them, a thing not at all strange by the way, for if there is anything a farmer takes pride in, it is his hogs. This feeling seemed to have worked itself up to an exceedingly high pitch, the present season, until it found vent by this astounding rush to the Fair ground. The provision made for the accommodation of these dignified personages, who always boast their carriage on such occasions, looked meagre enough, when compared with the host to be provided for. And after all had been done, that generous hospitality could do, many were debarred the privilege of showing their fair proportions to the best advantage, and remained shut up in comparative

seclusion within the walls of their equipage, with naught to console them but the thought that their elevated position prevented the too familiar contact of the vulgar crowd. Among so many and worthy competitors, it might seem invidious in us to make comparisons. We only venture to say that, among this various assemblage of growth and beauty, memory reverts with peculiar satisfaction to a nest of weaned pigs, owned by George J. Lyman, of Granby, that were perfectly charming.

It remains for us to speak of the horses—a subject to which we feel an incompetency, and from which we would gladly excuse ourselves. Indeed, in such an array of animals, most of them apparently valuable ones, and with only a very limited observation, it would be impossible to make any nice discriminations. The exhibition of Stallions, however, seems to us of such a character, as to deserve more particular notice, and we cannot do better here than to refer to the report of the special committee appointed to examine these animals. They say only one stallion was entered which was entitled to the regular premium—he was a fine four years hunter, owned by H. A. Longley, of Belchertown, and doubtless a son of his Kentucky hunter. The committee recommend a gratuity to N. R. Washburn, of Springfield, and remark that, for driving and fancy horses, his stock will unquestionably be valuable. Also, they recommend a gratuity to Levi Sumner, of Heath, for his bay stallion, whose well knit frame and determined action indicated just the qualities desirable for draft and farm horses.

hey also speak with approbation of the black morgan owned by A. C. Stowell, of Petersham.

On the whole, we congratulate the members of the Hampshire Society on another successful Fair. If, in closing, they will suffer from us a word of advice, it shall be this: study in all your stock operations to maintain as large a variety, as your circumstances will admit. In this way every thing will be consumed, and all to the best advantage. In this way you will be pretty sure of sometimes winning Dame Fortune's smiles and will avoid the mortification of those, who not unfrequently behold the contents of the barn and the granary emptied into the barn-yard; while they have nothing to show for it, but a large pile of most excellent manure. In this respect, our line of policy should be wholly different from that pursued by the western farmer, who relies almost entirely upon two or three staple products, which must be sent to a distant market. On the contrary, the Massachusetts farmer is fa-

vored with a home market, and he should make it his great business to produce as much as possible of all those necessaries of life, which at certain seasons of the year will not bear long transportation, and when he may be sure of a ready market. Be sure to *feed well* what stock you keep. "Give and it shall be given to you," is a maxim that applies as well to stock-raising, as to morals or religion. He who practices it will find his reward, not only in a more profitable return for his labor, but in the thought that in this way he imitates in his humble sphere, the benevolence of the Creator, who clothes the lilly, feeds the raven and satisfies the desire of every living thing.

COW AND CALF.

WILLIAM A. STEARNS' STATEMENT.

My cow Juno, I suppose, to be about thirds Durham. She is an excellent milker, both as to the quantity and quality. Her mother, still thriving, is considered the best cow in Cambridge. Two years ago last May and June, for nineteen days in succession, she gave on an average, twenty quarts a day, measured milk, without the froth, in old milk measure, and nearly as much a day for a good while after. It was difficult to dry her up. She is now farrow, has given milk eighteen months, and still gives ten quarts a day. Thus much of the mother of Juno. Her grandmother sometimes gave twenty-two quarts a day, in the height of feed, as the mother also did occasionally. My cow, though uncommonly good, has never equalled either of them. She has distinguished herself above her progenitors by the very large size of her calves.

The calf which I present herewith, was dropped on the 20th of August, and, accordingly, will be seven weeks old on the first day of the Fair. He was taken off from the cow about the third day, and has been fed chiefly on skim milk ever since. He now eats some grass, and sometimes takes a little meal with his milk. He was sired by Mr. Sweetser's full blood Ayershire.

MILCH COWS.

R. B. HUBBARD'S STATEMENT.

My cow is seven years old,—is half native blood, one fourth Ayershire and one fourth Durham. I raised her from a calf. Her Ayershire blood she derives from an Ayershire bull kept by the H. F. & H. Agricultural Society. She has never been kept high and has eaten but very little meal. She had

her first calf when a little more than two years old, and dropped her last calf the first week in March, 1856, and will calve about the 20th of February next.

The first week in September, we made from her milk, (besides what was used in the family, and we used cream for coffee every morning) nine and a half pounds of butter. During the second week we made nine and three fourth pounds, and in all this time she had nothing but grass.

During the week ending Oct. 5th, there was made from her milk the but ter which is presented, which we call ten pounds and 2 ounces.

This week, she had, besides grass, a little "messing," not exceeding in value two quarts of meal—a mixture of corn and broom seed each day.

The butter was made in the ordinary way. Each mess of milk was set in four tin pans, in a room separate from the kitchen, and suffered to remain about 48 hours. It was churned in a thermometer churn, worked over twice, and salted with one ounce of salt to the pound. Not a particle of coloring matter was pnt into the cream or butter, nor did the cow have any carrots.

B. U. DICKINSON'S STATEMENT.

The cow which I offer is nine years old, and of the native breed. In August 1856, she had her last calf, which was fattened and killed when six weeks old, and weighed 187 lbs. The milk has been weighed for seven days only, and the average weight was 35 lbs. per day. I did not have time to make butter from the cow, as the rule of the society requires.

BEES.

MASTER J. F. RUSSELL'S STATEMENT.

I wish to make a statement in regard to my bees, but do not compete for a premium. I commenced last spring with three hives of bees and have had eight swarms issue from them, four of which were small. I united them and made two swarms, which with the others made me six good sized swarms. I had taken two hundred and twenty-eight pounds of surplus honey from them and left, in the main apartment, more than they will probably want for winter. Part of the remainder I intended to take from them and still leave a full supply for their winter use. I use Rev. L. L. Langstroth's Movable Comb Hive.

CHEESE.

REV. W. H. BEAMAN'S REPORT.

There were fourteen entries of cheese. The specimens were all of fine quality. The difference between the better and the poorer was in some comparisons scarcely a shade.

In the methods of making there was but little variety among the successful competitors.

No. 1. According to this statement, the milk when taken from the cow is strained into a kettle and rennet is added, after which it stands until the curd separates from the whey. It is then dipped off and permitted to drain, until dry enough to make into cheese. The same process is repeated witth next days's milk, when both curds are put together, warmed, salted, pressed two days, and turned daily till cured.

No. 2. The night's milk stands in a kettle till morning, when it is warmed and rennet is added sufficient to bring the cheese in about an hour, when it is drained, pressed two days and turned daily till cured.

No. 3 The cream is taken from the night's milk, and warmed with the morning's milk; then rennet is added sufficient to bring the curd in an hour; then it is scalded and drained till afternoon, when it is put into the press.

No. 4. Rennet is put into the milk when strained: The milk stands till the curd is separated, which is then drained, warmed, salted, pressed two days, and turned daily till cured.

No. 5 is about the same as No. 1.

No. 3 is made from a dairy of ten cows—No. 4 from a dairy of eight. A large dairy appears to be an important condition of cheese. Its quality must be affected, also, by the character of the cows and of their keeping. "There seems at first sight, to be no connexion between the application of bones to the Cheshire farmer's poor grass land and the unexpected crumbling of the Cheshire dairy maid's cheese. Yet the connexion is plain enough. The bones bring up richer grass, which gives richer milk; and this treated in the old way makes a fatter and therefore more crumbly cheese."

In the manufacture there should be a regard to health as well as taste. Milk is the first and natural food of man. It would appear, therefore, that cheese eaten as food, to be most healthful, must partake, as nearly as may be, of the ingredients of milk in natural proportion. If cream is added to the milk, it makes a cheese too rich for common use as food, and if taken from it, too poor. Of all indigestible articles of diet, scarcely any can be more so, than hard skim milk cheese. It is a wonder how that called the Suffolk, (Eng.), whose milk is skimmed three or four days in succession, can be digested in human stomachs, for it often requires an axe to cut it, and is said to be so hard that "pigs grunt at it, dogs bark at it, but neither of them dare bite it."

Mr. Johnson, an English writer on agriculture and chemistry, has given a table, comparing the ingredients of milk, cheese, (new and skim milk) beef and eggs, as follows:—

		CHEESE.			
	Milk.	*New.*	*Skim.*	*Beef.*	*Eggs.*
Casein, (curd),	35	45	80	*89	55
Fat, (butter),	24	48	11	7	40
Sugar,	37				
Mineral Matter,	4	7	9	4	5
	100	100	100	100	100

To this the following remarks are appended; "We see from this table that both cheeses are free from sugar. Either of them, therefore, must be eaten with a quantity of vegetable food, which may supply the starch or sugar required to make it equal to milk, as a general nourishment. Again, the new milk cheese contains more fat than even the eggs. It is too rich, therefore, to be used as an every day diet by the generality of stomachs. It is partly for this, and partly for the previous reason, that cheese and bread are almost invariably eaten together.

Then, in the skim milk cheese, we have only eleven per cent of fat mixed with eighty per cent of the very constipating curd. Experience has shown this to be far too little, and therefore butter or fat bacon, as well as bread, must be consumed along with these poorer cheeses, when much of them is intended to be eaten; or they must be cooked in made dishes, along with some other variety of fat."

The conclusion of the whole matter is, that, as unskimmed milk is the most healthful to drink, so is unskimmed-milk-cheese most healthful to eat; and that which is most agreeable to a healthy palate may generally be presumed to be most healthful to the animal system.

*The curd of milk, muscle of meat and white of eggs are nearly identical.

FRUIT.

DR. FRANKLIN BONNEY'S REPORT.

There were two hundred and fifteen plates of excellent apples at the Fai, in the new Agicultural Hall.

The specimens of grapes were well ripened and of excellent flavor. A raisin Isabella was particularly delicious. Some very fine specimens of foreign grapes were brought into the hall, by Hon. Francis De Witt, who presented them in behalf of Hon. Orin Sage of Ware. The varieties were the White Grape, White Nice, Austrian Muscat, White Bual, White Sweetwater, Royal Muscadine, Syrian. Of the dark varieties, Black Hamburgh, Victoria Hamburgh, Red Trarminer, and Gridley Fontigau. The magnificent clusters of the Hamburghs, and the transparent delicacy of the lighter varieties furnished a pleasant temptation to the palate. Any one must have felt full of grape, while mentally drinking in these Sweetwaters; and we should not be very much surprised if some *shooting* affairs should come off next spring, as the result of the hot-headedness produced by this infusion.

We understand that these grapes are raised under glass without fire—the temperature of our climate being elevated enough to ripen the fruit, if the sudden changes of weather can be guarded against.

It seems surprising, in view of the little expense and labor involved—that more attention is not paid to the cultivation of the grape. As a luxury and a healthy article of diet, this fruit is unsurpassed. Besides this, necessity seems to be forcing upon our considerationthe home production of wine. It is notorious, that it is almost impossible to obtain a pure foreign article. This fact has already driven many persons to the manufacture of currant and other varieties of wine, which cannot compete in quality, or facility of manufacture with the juice of the grape. Experience has already shown that no foreign wines can surpass some of those produced in the middle and western States. The Catawba, manufactured in Ohio, has a less proportion of alcohol, than the most highly esteemed and delicate champaignes of Europe, rendering it on that account superior to any other variety. There is no reason why its production may not be increased

to any desirable extent, thereby insuring a pure article, for whatever use it may be necessary.

The quinces were very fair specimens, some of them very large and fine. In addition to the premiums, several gratuities were bestowed. There were a few plates of nice looking peaches. They received gratuities.

A box of tomato figs very closely imitated the article they were designed to represent. There were some fine specimens of Cranberries, and a few barberries upon the tables.

ANALYSIS OF PREMIUMS.

For Farm Improvements,	$99,45
" Crops,	38,00
" Farm Implements,	10,50
" Cattle, Horses, Sheep and Swine,	199,62
" Butter and Cheese,	25,40
" Fruits and Flowers,	22,59
" All other Agricultural objects,	28,55
" Miscellaneous Articles	31,80
Total Awards,	$455,91

Number of Premiums Awarded,	278
Different individuals who received Premiums,	222
Different towns in which Premiums were distributed,	25

Amherst,	$117,45	Northampton,	$7,00
Belchertown,	17,95	Pelham,	2,75
Boston,	25	Petersham,	1,00
Chicopee,	2,00	Shelburne,	1,75
Conway,	5,62	Shutesbury,	10,00
Enfield,	75	South Hadley,	5,75
Granby,	18,70	Springfield,	3,25
Greenfield,	25	Sunderland,	145,42
Hadley,	70,93	Ware,	2,87
Heath,	2,00	Whately,	6,75
Leverett,	27,85	Williamsburgh,	3,25
Middleborough,	50	Windsor,	1,00
Montague,	87	Total,	$455,91

Analysis of Members.

Although the Hampshire Agricultural Society has received, during the past five years, an average of sixty-one new members annually yet, this year, there have been eighty-six new members, so that the whole number of members is now NINE HUNDRED AND SIXTY.

AMHERST,	395	LYNN,	1
ATHOL,	2	MARBLBOROUGH, N. H.,	1
BALTIMORE, MD.,	1	MONTAGUE,	7
BEAVER DAM, WIS.,	1	MONTGOMERY, ALA.,	1
BELCHERTOWN,	30	MOUNT PALATINE, ILL.,	3
BOSTON,	7	NEW SALEM,	1
CAMBRIDGE,	1	NEW YORK CITY,	5
CHICAGO, ILL.,	3	NORTHAMPTON,	24
CHICOPEE,	2	OSKOSH, WIS.,	1
COLERAINE,	1	PALMER,	1
CONWAY,	1	PELHAM,	13
COVINGTON, KY.,	1	PHILADELPHIA, PA.,	2
DEERFIELD,	7	PRESCOTT,	3
EASTHAMPTON,	5	PROVIDENCE, R. I.,	1
ENFIELD,	3	ROSEMOND, ILL.,	2
FARRIBAULT, MIN. T.,	3	SALEM,	1
GRANBY,	36	SARATOGA, N. Y.,	1
GRANBY, CT.,	2	SHARON, ILL.,	1
GRAND RAPIDS, MICH.,	4	SHUTESBURY,	7
GREENFIELD,	3	SOUTHAMPTON,	1
GREENWICH,	3	SOUTH HADLEY,	25
HADLEY,	121	SPRINGFIELD,	3
HARTFORD, CT.,	1	SUNDERLAND,	123
HATFIELD,	1	TAUNTON,	2
HOLYOKE,	1	WARE,	13
IOWA,	2	WESTBOROUGH,	2
KNOXVILLE, TENN.,	2	WEST SPRINGFIELD,	1
LEVERETT,	68	WILLIAMSBURGH,	2
LOCKPORT, N. Y.,	1	WILMINGTON, VT.,	2
LONGMEADOW,	1	WORCESTER,	3

Premiums.

FARMS.

T. P. Huntington, Hadley, $20

FARM ACCOUNTS.

T. P. Huntington, Hadley, $5

FEEDING SWINE.

Albert Montague, Sunderland, $4

SWAMP LANDS.

David Hubbard, Sunderland, $6
Avery D. Hubbard, do 4
Kelita Hubbard, do 4

UNDER-DRAINING.

David Hubbard, Sunderland, $8

APPLE TREES.

Dr. N. G. Trow, Sunderland, $5
John R. Robinson, do 3

RECLAIMED ORCHARDS.

Kelita Hubbard, Sunderland, $3

NURSERIES.

William Hunt, Sunderland, $3

MANURES.

S. D. Crocker, Sunderland, $6
Albert Montague, do 4

HONEY.

David S. Cowles, Hadley, $1
Daniel Dickinson, Amherst, Farmer.

WHEAT CROPS.

William Bowman & Son, Sunderland, gr., . . . $4
T. P. Huntington, Hadley, gr., 3

CORN CROPS.

Albert Montague, Sunderland, $5
John M. Smith, do 4

POTATO CROPS.

George Dickinson, Hadley, $4
O. & F. H. Williams, Sunderland, 3

BROOM CORN.

Albert Montague, Sunderland, $3
N. Austin Smith, do 3
Alden Graves, do gr., $2

OAT CROPS.

Albert Montague, Sunderland, $3

CARROTS.

David Hubbard, Sunderland, $3
O. & F. H. Williams, Sunderland, 2

STALLIONS.

H. A. Longley, Belchertown, $8
Anson R. Chapman, Amherst, 5
N. R. Washburn, Springfield, 3
Levi Sumner, Heath, 2
A. C. Stowell, Petersham, 1

CARRIAGE HORSES IN PAIRS.

N. W. Bartlett, Williamsburgh, $3
Henry Smith, South Hadley, 2

FARM HORSES.

Benj. T. Carter, Hadley, $2
E. P. Dickinson, Sunderland 1

MARES AND COLTS.

Samuel Tower, Hadley, 3
Lyman A. Newton, Sunderland, 2
Guy C. Munsell, Amherst, 1
L. H. Cowles, Granby, Stable Book.

SINGLE CARRIAGE HORSES.

E. Foster Cook, Amherst, $2,00
R. Anderson, Shelburne, 1,75
Nelson Smith, South Hadley, 1,50
Alfred Baker, Amherst, 1,25
S. W. Whitney, Amherst, 1,00

DRAFT HORSES.

Lyman Gunn, Amherst, $3
H. H. Luddington, Chicopee, 2
Wm. E. Dudley, Leverett, 1

COLTS—THREE YEAR'S OLD.

A. T. Judd, South Hadley, $2,00
S. W. Clark, Northampton, 1,50
A. S. Howe, Shutesbury, 1,00
E. G. Field, Sunderland, Richardson on the Horse.

COLTS—UNDER THREE YEARS.

E. Martin Ingram, Leverett, $1,50
Wm. H. Marsh, Hadley, 1,25
Asa Richardson, Belchertown, 1,00
Milo A. Taylor, Granby, gratuity.
Lucius H. Cowles, Granby, gratuity

PLOWING WITH DOUBLE PLOW.

L. W. Hannum, Belchertown, $4
Levi D. Cowles, Amherst, 3

PLOWING WITH OX TEAMS.

E. Porter Dickinson, Sunderland, $3
J. B. Kentfield, Hadley, 2
Flavel Gaylord, Amherst, 1

PLOWING WITH HORSE TEAMS.

J. Woodbury Hobart, Amherst, $5
William Strong, Northampton, 4
Nathaniel Smith, Sunderland, 3
Alfred H. Cook, Hadley, 2
Chester T. Parsons, Northampton, 1
Edmund Hobart, Amherst, Farmer.

STRINGS OF CATTLE.

Town of Leverett, $20
Whipple & Ward, Amherst, 1

HERDS.

Luke Sweetser, Amherst, $6

BULLS AND BULL CALVES.

Lucius H. Cowles, Granby, $5
W. E. & S. S. Dickinson, Amherst, 3
Augustus Clark, Granby, 3
Luke Sweetser, Amherst, 5
T. P. Huntington, Hadley, 5
Charles Hamilton, Shutesbury, 2
R. T. Wheelock, Amherst, Farmer.

WORKING OXEN—FIVE YEARS OLD.

Samuel F. Dudley, Shutesbusy, $5
Chester Cowles, Amherst, 4
Linus Green, Hadley, 3
Flavel Gaylord, Amherst, 2
William E. Dudley, Leverett, 1

WORKING OXEN—FOUR YEARS OLD.

Lorenzo H. Pomeroy, Amherst, $3
Charles Hamilton, Shutesbury, 2

STEERS—THREE YEARS OLD.

Otis Turner, Whately. $3
R. T. Wheelock, Amherst, 2
A. A. Rankin, Pelham, 1

STEERS—TWO YEARS OLD.

Otis Turner, Whately, $2,00
Elon Sanderson, Whately, 1,50
Willard M. Kellogg, Amherst, 1,00

STEERS—ONE YEAR OLD.

Alfred Baker, Amherst, $1,50
Thomas Buffum Pelham, 1,00

STEER CALVES.

H. H. Marsh, Hadley, Milburn's Cattle Breeding.

FAT CATTLE.

Cephas May, Conway, $5
Levi D. Cowles, Amherst, 4

MILCH COWS.

R. B. Hubbard, Amherst, $3
B. U. Dickinson, Amherst, 1
W. A. Stearns, Amherst, 3

HEIFERS AND HEIFER CALVES.

Henry Cobb, Amherst, $2
T. P. Huntington, Hadley, 1
Augustus Clark, Granby, 2
David Pomeroy, Amherst, Farmer.

BUCKS.

Samuel Prince, Amherst, $2
Edmund Hastings, Amherst, 1

EWES.

William W. Smith, Amherst, $2
Linus Green, Hadley, 1

POULTRY.

David Hubbard, Sunderland, $2,00
Daniel Cowles, Hadley, 1,50
C. B. Hubbard, Sunderland, 1,00
Luke Sweetser, Amherst, Richardson on Domestic Fowls.

BOARS.

T. P. Huntington, Hadley, $3
Caleb T. Hubbard, Sunderland, 2
S. F. Eastman, Granby, 1

SOWS AND PIGS.

Austin Russell, Sunderland, $4
Samuel S. Hibbard, Hadley, 3
Henry Cobb, Amherst, 2
Horace Russell, Hadley, 1

WEANED PIGS.

Martin L. Hubbard, Sunderland, $3
George J. Lyman, Granby, 2
Lorenzo H. Pomeroy, Amherst, 1
Emmons Russell, Sunderland,
Richardson on Hogs.

APPLES.

Austin Eastman, Amherst, $2,00
John C. White, Amherst, 1,75
John Clark, Hadley, 1,50
Daniel Dickinson, Amherst, 1,25
Josiah Ayres, Amherst,
Fruit Gardener's Companion.

GRAPES.

Orin Sage, Ware, $2,00
Giles F. Montague, Granby, 1,00
Charles O. Sears, Amherst, 1,00
Charles Adams, Amherst, 1,00
Charles Adams, Amherst,
Allen on Culture of Grapes.
Walter Fuller, Amherst,
Hoare on the Grape Vine.
Lizzie Adams, Amherst, 1,00
Walter Fuller, Amherst,
Charlton's Grape Grower's Guide.
E. E. Robinson, Sunderland,
Persoz's Culture of Grapes.

QUINCES.

Elihu Smith, Sunderland, $1,00
John Slater, Amherst, Farmer.
Cummins Fish, Amherst, .25
Wm. F. Bowman, Sunderland, .25
J. W. Hobart, Amherst, .25
Willard Hibbard, Hadley, 25

TOMATO FIGS.

Mrs. C. D. Dickinson, Hadley, .25

PEACHES.

Ephraim Montague, Belchertown, .25
John Sisson, Belchertown, .20

WALNUTS.

William Boltwood, Amherst, .20

BARBERRIES.

W. H. Perry, Amherst, .25

CRANBERRIES.

Edward A. Stanley, Amherst, .25
Cummings Fish, Amherst, .25

MAPLE SUGAR.

Albert Montague, Sunderland, $1,00
Zebina M. Hunt, Sunderland, .75
Peter Spaulding, Jr., Montague, .50

FLOWERS.

Mrs. F. M. Graves, Sunderland, $1,00
Mrs. S. W. Boutwell, Leverett,
American Florist's Guide.
Miss A. Parmenter, Sunderland, 1,00
Miss Sarah Lyman, Sunderland,
Buist's Flower Garden Directory.

VEGETABLES.

T. P. Huntington, Hadley, $1,00
Edwin Chapin, Hadley, 3,00
David S. Cowles, Hadley, 2,00
David Hubbard, Sunderland, 1,50
Ransom Dickinson, Sunderland, 1,00
Charles Stetson, Amherst, 1,00
E. Russell, Sunderland, .75
John C. White, Amherst, .50
Wm. Boltwood, Amherst, .50
Henry Cobb, Amherst, .50
B. F. Dunklee, Sunderland, .50
William Hibbard, Hadley, .25
Warren Montague, Sunderland, .25
Miss Laura Emerson, Amherst, .25
Horace Smith, Amherst, .25
Arthur Montague, Sunderland, .25
Levi D. Cowles, Amherst, .25
John E. Albee, Amherst, .25
H. Wilson, Belchertown, .25
J. G. Russell, Hadley, .25
Orin Williams, Amherst, .25
Chester Cowles, Amherst, .25

WHEAT FLOUR.

Sylvester Brown, Sunderland, 1.00
J. G. Lyman, Granby, Farmer.

RYE FLOUR.

C. B. Hubbard, Sunderland, $1,00
S. D. Crocker, Sunderland, Farmer.

WHEAT BREAD.

Mrs. D. S. Field, Amherst, $1.00
Mrs. Wm. P. Dickinson, Hadley, .75
Mrs. H. O. Williams, Sunderland, .50

RYE BREAD.

Mrs. Nath'l Smith, Sunderland, $1,00
Mrs. Wm. P. Dickinson, Hadley, .75
Mrs. Edwin G. Field, Sunderland, .50

RYE AND INDIAN BREAD.

Mrs. R. W. Stratton, Amherst, $1,00
Miss E. E. Dickinson, Amherst, .75
Mrs. D. S. Field, Amherst, .50

BUTTER.

Mrs. A. Montague, Sunderland, $4,00
Mrs. C. B. Hubbard, Sunderland, 3,50
Mrs. T. Graves, Sunderland, 3,00

Mrs. N. A. Smith, Sunderland, 2,50
Mrs. E. Smith, Sunderland, 2,00
Mrs. M. Graves, Sunderland, 1,50
Miss O. M. Field, Leverett, 1,00
Mrs. M. Hubbard, 2d, Sunderland, Farmer.

CHEESE.

Mrs. S. S. Dickinson, Amherst, $2,50
Mrs. E. D. Hubbard, Amherst, 2,00
Mrs. Orin Williams, Amherst, 1,50
Miss C. Dickinson, Amherst, 1,00
Mrs. G. Chandler, Belchertown, Farmer.

COTTON AND WOOLEN MANUFACTURES.

Field & Hubbard, Leverett, $1,35
Miss S. T. Dickinson, Amherst, 1.25
Mrs. Samuel Smith, Granby, 1,00
Mrs. Susannah Kellogg, Amherst, .90
Miss Charlotte Jones, Enfield, .75
Ellaroy M. Bolton, Amherts, .65
Mrs. Jason Thayer, Amherst, .65
Miss M. Thayer, Belchertown, .60
Mrs. E. P. Dickinson, Sunderland, .55
Mrs. Levi Boutwell, Leverett, .50
Mrs. A. Montague, Sunderland, .50
Mrs. Wm. Dickinson, Amherst, .50
Mrs. Harrison Field, Leverett, .50
Miss E. S. Bowen, Ware, .50
Miss E. M. Hubbard, Sunderland, .50
Quartus E. Moore, Leverett, .45

CARPETING.

Mrs. A. Montague, Sunderland, $1,40
Mrs. Silas Howard, Belchertown, 1,20
Mrs. E. Russell, Sunderland, 1,00
Miss Maria Gilbert, Sunderland, .90
Mrs. Orin Williams, Amherst, .80

FANCY ARTICLES.

Miss H. E. Goodell, Amherst, $1,50
Mrs. C. Clark, Sunderland, 1.00
Mrs. W. P. Warner, Hadley, .62
Mrs. T. G. Huntington, Hadley, .50
Miss S. L. Fitts, Northampton, .50
Miss Temple Linnell, Amherst, .50
E. W. Cowles, Amherst, .50
Mrs. Sampson, Mibbleborough, .50
Miss Elizabeth Smith, Granby, .50
D. J. Bartlett, Amherst, .50
S. F. Cooley, Hadley, 1,00
Miss Maria R. Nims, Amherst, .50
L. M. Hills & Son, Amherst, .50
Miss C. B. Andrews, Montague, .37
Miss Eliza Bowen, Ware, .37
Miss F. M. Graves, Sunderland, .37
Miss L. & A. J. Aiken, Conway, .37
Mrs. Edwin G. Field, Sunderland, .25
Mrs. Joseph Smith, Hadley, .25
Mrs. N. A. Smith, Sunderland, .25
Miss E. E. Hastings, So. Hadley, .25
Miss J. A. Thompson, Pelham, .25
Mrs. H. G. Firman, Springfield, .25
Miss C. Bowman, Sunderland, .25
E. G. Shumway, Amherst, .25
Lorenzo Sears, Williamsburgh, .25
Miss D. Field, Conway, .25
Mrs. Smith, Amherst, .25
Miss Eliza Slater, Amherst, .25
Mrs. M. S. Hastings, Amherst, .25
Mrs. Sarah E. Emerson, Amherst, .25
Miss Newman, Amherst, .25
Mrs. George Cutler, Amherst, .25
Mrs. Benjamin Adams, Hadley, .25
Mrs. Clinton J. Cowles, Amherst, .25
Miss Mary Flint, Boston, .25
Miss M. A. Bardwell, Whately, .25
Mrs. Samuel D. Smith, Greenfield, 25

MECHANIC ARTS.

B. F. & L. H. Allen, Amherst, $1,00
Charles Stetson, Amherst, $2,00
P. F. Cooley, Windsor, 1,00
Crafts & Beals, Whately, U. S. Report.
O. M. Clapp, Amherst, 1,00
A. Daniels, Northampton, U. S. Report.
C. F. Hayward, Amherst, 50 cents and Report.
Jos. Adams & Sons, Hadley, U. S. Report.
Horace Gray, Pelham, .50
Austin Mathews, Amherst, 1,00
Joel Packard, Belchertown, 1,00
H. O. Williams, Sunderland, .50
H. T. Filer, Belchertown, 1.00
W. W. Tyler, Amherst, U. S. Report.
A. Randall & Co., South Hadley. U. S. Report,
Hunt & Co., Amherst, $1 and U. S. Report.

NOTES OF THE FAIR.

The seventh annual exhibition of the Hampshire Society was one of the most successful Agricultural Fairs in Massachusetts, the present year. There was an attendance of probably four or five thousand persons. As a whole, it was more extensive and attractive than any former exhibition of the Society.

At the show of 1855, the whole number of entries was less than six hundred. This year, the number of entries was nearly eight hundred.

In the Hall, there were one hundred more entries than in 1855.

The steers, milch cows, heifers, calves, poultry, swine and horses, showed improvement in number and in quality. The whole number of neat cattle was two hundred and thirty-three; and there were one hundred and twenty-two swine, and one hundred and eighteen horses on exhibition.

At the plowing match sixteen teams competed, and all the plowing was excellent.

In the Agricultural Department there was an increase of entries of manures and of crops of wheat, corn, broom-corn, and oats.

The trial of mowing machines was on L. D. Cowles' farm. Although a volunteer affair, it may become hereafter as much a part of the exhibition as the drawing match or plowing match; especially if the ladies accept Col. Page's invitation to be present at the matches.

The new Agricultural Hall is seventy-five feet in length, and sixty-two feet in width. It is spacious and adapted to the purposes for which it is designed. One half of the expense of fitting up the Hall is borne by the Society, on condition that the Society has the use of it for exhibitions, paying a reasonable rent; and that the Society have one half of the income from the rents of the Hall.

The other half of the cost of the Hall was borne by Hon. John Dickinson, Luke Sweetser, Levi D. Cowles, Hon. Edward Dickinson, Charles Adams, J. W. Boyden, William Cutler, Allen & Palmer, and R. S. Lincoln.

The great size of the Hall and its convenient internal arrangements, enable it to exhibit to advantage all the various articles, and to avoid subjecting visitors to the annoyance of a crowd. The Hall has more than met the most sanguine expectations of the officers of the Society. The amount received at the door, from persons who are not members of the Society, indicates that the sum expended in fliting up the Hall, will, in a few years, be returned to the treasury

THE ANNUAL DINNER.

REPORTED BY Z. C. MONTAGUE

The Annual dinner was furnished in Phenix Hall, Amherst, by R. S. Lincoln, of the American House. The hall was profusely and tastefully decorated with evergreens. The tables were loaded with good things, and fully realized, in provision for the animal wants, all that was expected from the well known reputation of Mr. Lincoln as a public caterer. Plates were laid for 350, and nearly every one had an occupant, a large, and of course, a handsome proportion of whom were ladies, representing the *elite*, not only of the farmers' wives and daughters of this and the neighboring towns, but also of the literary, scientific and professional portion of the population, of whom no other part of the State contains a larger share than this favored valley.

By invitation of the President, the Divine blessing was implored by Rev. George E. Fisher of Amherst then, all hands "fell to" with a zest which would have given relish to the the good things, even without the rich sauces and provocatives with which the smoking viands were flanked and supported. Animal appetite, however, in due time gave way for a *richer feast* to come.

The President, William P. Dickinson, Esq., of Hadley, introduced the intellectual feast dishes with a neat and cordial speech of welcome to all. He alluded in the most gratifying terms to the continued and increasing prosperity of the Hampshire society. Eighty new members had been enrolled on its catalogue since the last anniversary. A new and spacious Hall had been constructed; and he

took occasion to tender the cordial thanks of the Society to those gentlemen, whose liberality and influence had brought this enterprise to a successful issue. The President concluded with the following sentiment:

The Orator of the Day—The able and untiring advocate of *Scientific Agriculture*, may he be successful in convincing the Farmers, that a little *head work* saves a great deal of hard work.

Dr. Hitchcock responded briefly and humorously. He did not expect they would want a speech from him at the table. He found himself in even a tighter place than he occupied an hour or two since, (alluding to his being unexpectedly called upon to deliver the address without preparation,) and after a few more words of earnest deprecation, he concluded by saying that he should decline the call altogether, and, said he, 'I verily believe this is the most acceptable speech I ever made. He then sat down amidst tumultuous applause.

The Secretary, J. W. Boyden, moved a vote of thanks to Dr. Hitchcock for the learned and excellent address, with which he had favored them, and that a copy be requested, in *perpetuam rei memoriam*, for publication in the Transactions of the Society. This motion was seconded by Mr. Sweetser, Chairman of the Executive Committee, and was carried by acclamation, one loud and long aye!

The next sentiment offered was:

The State Board of Agriculture—Of their numerous volumes in furtherence of Agriculture they had sent us their best *page!*

Hon. J. H. W. Page of Boston, delegate of the State Board apologided for his inexperience as a speaker, but said he had intended to deliver himself of a set speech on th[illegible] occasion. On retiring to his room the night of the first day of the [illegible]ow, when he found himself between the sheets of the bed prepared [illegible] him by his amiable hostess now, thought he, is the time to prepare [illegible]y speech for the morrow.—So he fell to thinking and composing, [illegible]d, as near as he [illegible] he had progressed as far as "Mr. President." The next he knew was a loud rap at the door, at an early hour, accompanied by the summons, "Breakfast is ready! Mr. P., evidently an experienced and graceful orator, spoke to a considerable length in a most happy and humorous strain. He paid the highest terms of compliment to the Plowing Match, which he pronounced the best, and on the worst ground, he had seen this year, though he had attended, as dele-

gate of the board, nearly every Fair in the State that had preceeded this. He complimented in an especial manner, also, the makers of the bread, especially of rye bread. 'If,' said he, there is a live woman at this table, whose delicate fingers mixed and moulded that rye bread (so called,) I call upon her to rise in her place and pledge me her affidavit, that the material was rye flour, and, if it was, to tell me where it was procured, for I wish to carry a bag of it home to my wife." Still, he added, I have complaint to make of the scarcity of ladies at the Fair. So marked was this delinquency, that, compared with other shows he had attended, there were no ladies at all at this exhibition. "Where were the bread makers, why were not the ladies who made the bread at the tables, showing it off?" The speaker concluded with a sentiment, borrowed from the original hymn by Mr. Frisbie of Amherst College, sung during the exercises at the church, which, said he, looking over the printed copy, as I do not see that a copyright is secured, I beg to appropriate for thi occasion: "In all coming days God speed the Plow!"

The next sentiment was complimentary to Amherst College.

Hon. Alexander H. Bullock of Worcester, one of the Trustees of the College, and one of her most cherished sons and gifted orators, responded in an elegant speech. Every one knows Col. B.'s surpassing power as a public speaker. We very much doubt if he ever, in the whole course of his life as a speaker, delivered an address, intrinsically better, or that was listened to with more evident pleasure or sympathy by an audience. He first spoke of the pleasure his present visit to Amherst afforded him—to behold again this beautiful scenery, to gaze again upon the broad fields of this valley, still in their glorious array of green; and especially of the happiness it afforded him to meet again his old and venerated teacher (Dr. Hitchcock.) In playful allusion to his college life here, more than twenty years ago, like all college boys partly for frolic, and partly for study, he said if Dr. Hitchcock's theories respecting the formation of the fossil tracks should prove true, and he should have a successor who should in future ages, dig up and deposit in the 'Appleton Cabinet' the fossil tracks which might be found in certain cornfields, orchards and melon patches, within sight of the College, he hoped that his (the speaker's) would not be there!

A large portion of his speech abounded in the most brilliant humor and flashing wit, but, in the more serious part of his remarks, he gave us some of the most startling and interesting statistics relative to the amount of the products of Massachusetts, in proportion to her population and area, compared with that of the other states, and the countries of Europe, demonstrating to a fraction that the yearly shoe crop alone of this State exceeded in value the entire cotton crop of the country. The speaker was constantly interrupted by loud and repeated applause. He closed with the following sentiment, borrowed he said, partly from General Jackson, and partly from the Constitution :

" *Our Federal Union*—It must be preserved.

The fourth regular sentiment was :

Massachusetts—May her *Laws* and *Resolves* ever sustain her Agricultural Societies.

Hon. Francis DeWit, Secretary of the Commonwealth, spoke of his pleasure in revisiting the hills and valleys of his native county, expressed his regrets that he was called out on this occasion, saying that his office and habit had accustomed him to write down what others might speak, rather than to speak himself. He earnestly urging his utter inability to make a speech, the truth of which he proceeded at once to illustrate to the assembly by giving us a speech relative to the productive industry of the State, a topic which his official position enabled him to discuss with accuracy and effect, and which was listened to with interest. Among other things, he said that Ex-Governor Clifford, many years ago, when the first book of Massachusetts industrial statistics was printed, when the subject was new and the returns and compilation of the documents very imperfect, sent a copy to a friend in England, self-styled the first manufacturing country in the world, and the friend wrote in reply : " I don't believe there is another such a perfect bee-hive on the face of the globe!"— Mr. D. closed with a sentiment complimentary to the Hampshire Agricultural Society.

The next sentiment submitted by the President was :

The present Congress—In all their strikings, we are happy they have not struck down the appropriation for Agriculture.

Hon. Calvin C. Chaffee, of Springfield, member of Congress for this District, rose to respond. Dr. Chaffee is a decidedly hand-

some man (so the ladies seated at the next table to us united in pronouncing him.) Throughout his remarks, as indeed was true of all the speakers at the table, the forbidden field of political discussion was with great good taste entirely avoided. Once or twice, when by accident a word or an allusion would suggest to all hearers the thought that a relapse into political warfare was inevitable, with the greatest adroitness he would avoid it, gracefully slide into another theme, or another part of his subject. Speaking of the increased appropriation for agricultural purposes at the last session, he stated that the immense agricultural interests of the Union called for a Bureau of Agriculture, that the present method of intrusting all its interests to the Patent Office was unsatisfactory, insufficient, and a burden to the Commissioner of Patents, who already has as much as he can well attend to in the legitimate and regular duties of his office. Dr. C. pledged himself to use his utmost endeavors, the coming session, to procure the creation of an Agricultural Bureau. On the whole our Hon. Represtenative showed himself to be eminently the man for his place. It was we are very certain, very gratifying to his numerous constituents present to listen to his soul-stirring eloquence. His manner, mein, diction and voice, stamp him one of the orators of the State.

The sixth regu'ar sentiment was :

Woman—The first fruit-picker. In picking the apple the first pair fell.

Professor Joseph Haven was called upon to reply in behalf of the ladies. He promptly arose, with the inevitable apology on his tongue's end that all modest men have, that he had been invited by the Secretary to dinner, and he came to dine and not to speak. This taught him a lesson and reminded him of a sentence somewhere in Latin, (after scratching his head,) he said, "I have found it, it is this,"

"*Timeo Dannas et dona ferentes.*"

which means, freely translated, something like this : Beware of Col. Boyden when he invites you to dinner!" The Professor then proceeded in the most playful manner to respond to the sentiment, in behalf of the ladies. He didn't think it well to go back so far,—that was a great while ago,—it was best to "let bygones be bygones." True there was a trouble in Eden once, but it was long, long ago—he couldn't say whether it was a political or domestic

difficulty, whether caused by a difference of opinion, or because both thought alike,—at any rate, it was so long ago, that the least said about it in this presence, the better. Every one knew that taking fruit in improper quantities, or at improper times always causes trouble. Since he was up he should take occasion to correct and set right the gentleman from the State Board (Mr. Page) who in the midst of his raptuous enconiums on rye bread, paused to complain that the ladies were not there, and asked why were not the ladies in the hall of exhibition,—where were the ladies that made that rye bread? "As to the bread," said the Prof., "I will inform the gentleman, it is no unusual affair; we always have just such bread in this valley; only an every day occurrence with us. As to the ladies, I will tell the gentleman where they were—they were at home, making rye bread!" (Here Mr. P. acknowledged the correction as perfectly satisfactory, and begged to retract every word he had said in detraction of the ladies.) Prof. H. kept the tables in a roar of laughter the whole time of his highly humorous speech.

The dinner exercises were enlivened at intervals by appropriate music by the Ingraham (South Hadley) Band.

There were several distinguished gentlemen present, who would have been called upon for speeches, had time permitted--and among them were Pres. Stearns of Amherst College, Hon. Edward Dickinson, Ex. M. C.; Prof. W. S. Tyler, just returned from his European tour; Prof W. C. Fowler; Mr. Fogg, of Deerfield, President of the Franklin Agricultural Society; Judge Hodges, Secy. of the H. F. & H. Agricultural Society; J. R. Trumbull, of the Hampshire Gazette; Dr. Holland, of the Springfield Republican, and others.

The dinner concluded at a late hour in the afternoon. And so ended the seventh, and most successful Cattle Show of the Hampshire Agricultural Society.

REPORT OF THE TREASURER.

RECEIPTS.

From State Treasury,	$600 00
" new members in cash and notes,	244 81
" new Agricultural Hall,	172 19
Interest of permanent fund,	194 00
From other sources,	29 39
Total,	$1,240,39

DISBURSEMENTS.

Premiums payable to competitors,	$423 61
Transactions for all the members,	128 67
Current expenses.	498 39
Total,	$1,050,67

STATE BOUNTY ACCOUNT.

Received from Commonwealth,	$600 00

EXPENDITURE.

In premiums payable to competitors,	$423 61	
For Copies of Transactions for all the members,	128 67	
Balance towards current expenses,	47 72	
		$600 00

PERMANENT FUND.

Loans on mortgages of real estate,	$2 550 00
Investment in new Agricultural Hall,	500 00
Outstanding notes of members, (considered good)	382 42
Investment in Cattle Pens, Tables, etc.,	165 04
Total Permanent Fund,	$3 597 46

Respectfully submitted,

JAMES W. BOYDEN, Treasurer.

Amherst, December 19, 1856.

Officers of the Society.

President,

WILLIAM P. DICKINSON, of Hadley,

Vice Presidents,

SIMEON CLARK, of Amherst.
JOHN A. MORTON, of Hadley.
N. AUSTIN SMITH, of Sunderland,
ORIN SAGE, of Ware.
ALONZO WARNER, of Granby.
WILLIAM H. SMITH, of Leverett.

Secretary and Treasurer,

JAMES W. BOYDEN, of Amherst.

Executive Committee.

LUKE SWEETSER, of Amherst.
AVERY D. HUBBARD, of Sunderland.
LEVI STOCKBRIDGE, of Hadley.
GILBERT A. SMITH, of South Hadley.
DAVID RICE, of Leverett,
SAMUEL SMITH, Jr., of Granby.
JOHN SISSON, of Belchertown.

Delegate to the State Board of Agriculture,

LUKE SWEETSER, of Amherst.

Life Members.

HONORARY LIFE MEMBERS.

Hon. A. H. Bullock, Worcester.
Hon. C. C. Chaffee, Springfield.
Hon. Geo. T. Davis, Greenfield.
Hon. Edward Dickinson, Amherst.
Hon. Charles L. Flint, Boston,
Prof. William C. Fowler, Amherst.
Hon. John C. Gray, Boston.
Edward Hitchcock, D. D., Amherst
Prof. F. D. Huntington, Cambridge
Z. C. Montague, A. M., Amherst.
Hon. J. H. W. Page, Boston.
Hon. Marshall P. Wilder, Boston.
W. C. Goldthwait, A. M. Longmeadow.

LIFE MEMBERS.

AMHERST.

Adams, Asa
Adams, Asa Mrs.
Adams, Charles
Adams, Charles Mrs.
Adams, John S.
Adams, John S. Mrs.
Ainsworth, Forrester
Allen, Benjamin W.
*Allen, Hiram H.
Allen, Hiram H. Mrs.
Allen, Martha L. Miss
Allen, M. Adams
Allen, Nathaniel
*Ames, Edwin
Ayres, Elijah
Ayres, Elijah Mrs.
Ayres, Josiah
Baker, Alfred,
Baker, Alfred Mrs.
Baker, Enos
Baker, Esek
Baker, George
Baker, George Mrs.
Baker, Joel
Bangs, Charles H.
Bangs, Danforth K.
Bangs, Danforth K. Mrs.
Barnard, Alvin
Barnard, Alvin Mrs.
Bartlett, David
Bartlett, David Mrs.
Belden, Aaron
Belden, Horace
Belden, Timothy C.
Blanchard, Horace,
*Blodget, Henry
*Bogue, Elisha
Bogue, Elisha Mrs.
Boltwood, Lucius
Boltwood, William
Boltwood, William Mrs.
Boyden, James W.
Boyden, James W. Mrs.
Brewster, John H.

*Deceased.

Bridgman, Guilford
Bridgman, Henry A.
Bridgman, H. A. Mrs.
*Bridgman, Jonathan
Briggs, Ebenezer
Briggs, Ebenezer Mrs.
Burnham, George Jr.
Burnham, Geo. Jr. Mrs.
Cadwell, Aretas J.
Cadwell, Aretas J. Mrs.
Carter, Samuel C.
Carter, Samuel C. Mrs.
Chandler, Aaron M.
Chapman, Anson R.
Church, Elihu S.
Church, Elihu S. Mrs.
Church, Spencer
Clapp, Oliver M.
Clark, Simeon
Clark, Simeon Mrs.
Clark, W. S. Prof.
Clark, W. S. Mrs.
Cobb, Henry
Conkey, Ithamar
Conkey, Ithamar F.
Conkey, I. F. Mrs.
Converse, Daniel
Converse, D. Mrs.
Cook, David S.
Cook, D. S. Mrs.
Cook, Enos F.
Cook, E. F. Mrs.
Cooley, Alden
Cooley, Moses D.
Cowles, Chester
Cowles, Chester Mrs
Cowles, Clinton J.
Cowles, C. J. Mrs.
Cowles, Enoch
Cowles, Enoch Mrs.
Cowles, Erastus
Cowles, Erastus Mrs.
Cowles, James
Cowles, James Mrs.
Cowles, Jonathan
Cowles, Jonathan Mrs.
Cowles, Jonath
Cowles, J. Jr. M
*Cowles, Julia B. Mrs.
Cowles, Levi D.
Cowles, Levi D. Mrs.
Cowles, Moses
Cowles, Moses Mrs.
*Cowles, Oliver
Cowles, Ransom
Cowles, Ransom Mrs.
Cowles, Submit Mrs.
Curtis, Oliver H.
Curtis, Oliver H. Mrs.
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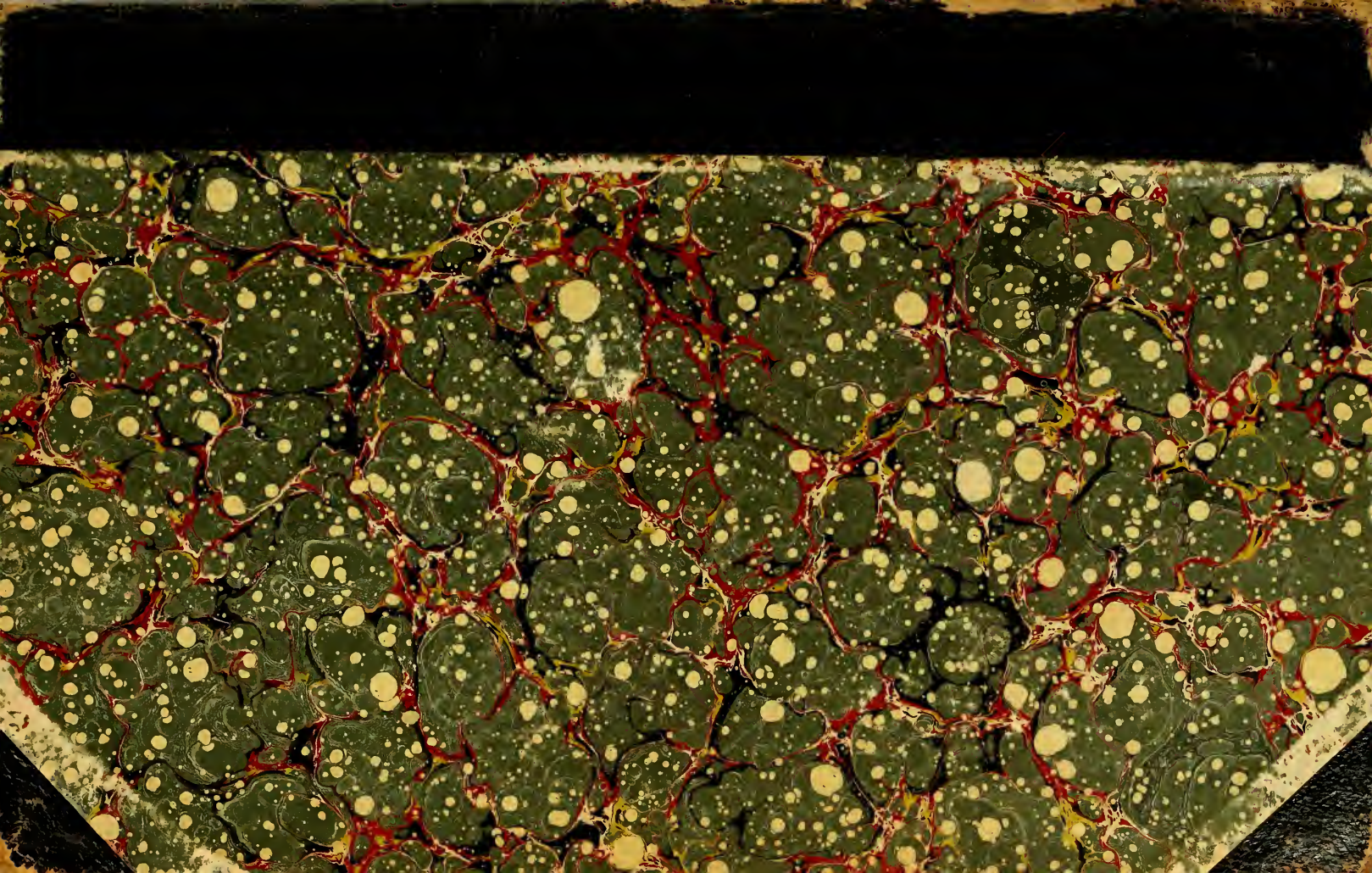
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